The Builder.

VOL. XXXII.—No. 1636.

Sanitary Engineers and the Government.

THE Association of Municipal and Sanitary Engineers and Surveyors, who have recently held their first annual meeting at Birmingham, had its origin in the exclusively medical and legal aspect in which the sanitary question was regarded by the Royal Sanitary Commission and by the late Ministry. The Local Government Department might have had excellent information upon which to frame a Public Health Bill in 1872 if they had asked for it, for there were then, as there are now, many civil engineers holding the office of town surveyor, who could have given the practical results of twenty years' experience of the difficulties in the way of carrying out proper sanitary work, difficulties which are not within the cognisance of either the medical or legal profession. Neither the medical nor legal aspect of sanitary work need have been left out of consideration,—indeed, could not have been,—but it is surprising that the Government did not seek such other information as would have enabled them to frame a complete Bill; and even some important provisions of the draft Bill brought in were dropped in order to conciliate the House, and the result was a compromised Public Health Act. There was an evident desire not to alarm the country by the introduction of a measure which should seem to contemplate constructive sanitary works. In explanation of this it was said that the engineer would be forthcoming when wanted, and that in the meantime the smaller sanitary defects should be cleared away and reports made of what works were really necessary to the maintenance of the public health. That seemed to be the policy of the measure, and it did not recognise the position of those who had been able to do something in spite of all the difficulties raised by the numerous and contradictory Acts of Parliament; and when the Act passed without recognition of the position of town surveyors there was a general feeling amongst them that their personal interests had been neglected by the Government.

Mr. Lewis Angell, C.E. and architect, the surveyor to the West Ham Local Board, took the first step in resentment of this exclusion by calling upon other gentlemen holding the same office as he holds, or others equivalent to it, to meet and see whether something could not be done to uphold the interests of the profession as against doctors and lawyers exclusively being considered.

This was a step which only required the right man to come forward in order to command a large number of associates, and Mr. Angell has conducted the business most successfully. He began by calling a private meeting at one of the rooms of the Institution of Civil Engineers, the result of which was the unanimous opinion that something ought to be done.

Let us now go back to the time of the difficulties of the General Board of Health in trying to establish itself in the estimation of the country,—say between the years 1848 and 1858. First of all the Institution of Civil Engineers set its face against Government interference in matters of civil engineering, including sanitary affairs, although the Institution had done nothing to promote them, but had rather despised sanitary engineering when its members were fully employed in commercial works, such as railways and waterworks promoted by joint-stock companies; but when work fell short under those auspices, the members of the Institution could listen to the demands of public bodies, and begin to turn their attention to sanitary work. They had not, however, shown any inclination to investigate the sanitary question in a scientific manner, and by repeated discussion prove what are the proper formulæ of proceedings under given conditions and circumstances, founding such formulæ on the experience already gained. If the Institution could have taken any but a commercial view of engineering practice, the sewage difficulty might have been solved long since; but the apathy of the Institution in presence of the sanitary question has delayed its solution by many years.

The Public Health Act, 1872, was framed wholly in regard of the medical profession. That profession, however, could not move without the assistance of inspectors of nuisances, and so this office was considered in the Bill.

Mr. C. Jones, the secretary of the Association of Municipal and Sanitary Engineers and Surveyors, in his speech at Birmingham, seemed to ridicule the Act of 1872 as having produced nothing but the inspector of nuisances, whom he described as a person who does what he is told to do by his employers, and receives a salary of something less than 100*l.* a year, out of which he must pay his travelling expenses, which would leave him in a worse position than a workhouse porter, who, besides having almost as much salary, has the advantage of charging for cutting hair, &c. This is a sad state of things, but it does not apply to all cases. Some of the inspectors of nuisances, and especially in rural sanitary districts, receive from 200*l.* to 300*l.* a year. They are not overpaid, neither do they stand in the way of the employment of civil engineers when their services are required.

No new light has been thrown upon the sanitary question by the meeting of this Association at Birmingham, nor is any needed at present; and the chief value of the proceedings of the meeting has been to reiterate truths already well known. In his address the president regretted that the position of local officers is yet unsatisfactory; they still lack that support and protection which he emphatically declared would alone render them efficient officers, superior to local influence and interested or ignorant obstruction and attack. He remarked that the present legislative aspect of the sewage question is very unsatisfactory; that municipal authorities and their official advisers have been placed in a most difficult position by the uncertain action of the Government; that if some of the official energy which has been directed to the prosecution of unfortunate towns were directed to the discovery of the remedy of the sewage difficulty; if there were some declaration or authority of what might be accomplished, and what would be satisfactory under certain given conditions, the Government would render a real service to the country; instead of which, he said, we are without guidance, and are recommended to adopt "the best known practicable process."

If this advice were followed, it would probably have the effect of defeating one at least of the objects of the Association,—self-employment. It is inconsistent with the opposition which civil engineers have always given to Government interference in civil works. It might, and probably would be, nevertheless, the proper thing to do; but the work would fall into the hands of the Royal Engineers. That body are ever ready to accept civil positions,—some of its members, at least; and probably quite a sufficient number to raise the latent ire of the civil engineers.

It should be remembered that "this is not a paternal Government;" and if it were possible that a minister of the Crown,—late or present,—could entertain a malicious idea, he might be supposed to laugh at the futile attempts of local bodies to deal with their own sewage.

It is possible, indeed probable, that the present Ministry may be equal to the occasion, but to combine all interests and thwart none will be a work of genius. It may safely be said, however, that no satisfactory result will or can be arrived at by the Government until the combined experience of town surveyors and inspectors of nuisances, as well as that of doctors and lawyers, is brought to bear upon the question. It should be remembered that many gentlemen holding the office of town surveyor,—a generic term, which includes the various forms of borough surveyor, city surveyor, surveyor to improvement commissioners, to local boards, &c.,—are regularly educated civil engineers, and men of scientific knowledge and experience; and moreover, that perhaps it is not in the largest towns where the best men are to be found, although on the principles of political economy it might be supposed that a man's knowledge is measured by his salary. A varied experience of the requirements of large and small populations, however, is the most valuable of all foundations of knowledge on this subject.

The papers read were on Building and Sanitary Bye-laws, by Mr. Lemon; on Sanitary Legislation and its Practical Exponents, by Mr. C. Jones; on Sewer Ventilation, by Mr. Ellice Clarke; on the Utilisation and Purification of Sewage, by Mr. E. Monson; on the Sewage Question, by the President; and on Street Lighting, by Mr. Skelton.

But little was said about water supply, and that little to the wrong purpose. Mr. Lemon, the vice-president, is reported to have recommended that water for domestic use should be supplied by meter, and paid for by quantity. He anticipated the objection that "such a plan would lead persons to use such small quantities that the sewers would never be properly flushed" by suggesting that the quantity over a given quantity should be charged for only in this way. It was hardly worth while to make the suggestion, seeing that the whole question was not under discussion, but, so far as it went, it was wholly wrong.

If a meter could be found which would register the quantity of water used in a house, and that quantity only paid for, the evil would not be so much that the sewers would not be flushed, as that the quantity used would not be sufficient for cleanliness and sanitary requirements. Then, if the quantity allowed to be used for a fixed payment be a certain number of gallons per head, but no more, the surplus only being paid for by meter, that would be quite impracticable in its working.

It is for the engineer to prevent waste, while giving an ample supply of water for all domestic purposes. We ought not to offer the temptation to the poor to save a few pence by using water by meter. An ample quantity of water is as vitally necessary for them as for others, and one would think a Government might be so paternal, even in England, as to require that it be supplied to them at a fixed charge.

The Mayor of Birmingham spoke very much to the purpose when, in proposing "Success to the Association of Municipal and Sanitary Engineers and Surveyors," he said that corporations everywhere had to deal with increasing difficulties, which were partly the consequence of the enormous aggregation of their constituencies,

and partly the legacy of past generations, through whose ignorance and neglect they had now to suffer.

With these gigantic difficulties they expected sanitary engineers to cope.

Well, sanitary engineers are quite equal to the occasion, we believe, and only wait for one of two things—first, either that an intelligible code of sanitary laws shall be instituted, which shall comprehend the actual requirements of the populations of towns and villages, and which shall be framed upon a knowledge of what is wanted, and how to do it under the various conditions which exist, and that those laws be made compulsory; or else that the constituent members of sanitary authorities shall be other than those whose first consideration is to protect their own individual pockets at all risks, whose knowledge of what is necessary to protect the public health is on a level with their knowledge of any other science, and who, having spent the best part of their life in getting rich, go to the Board to prevent their riches being taxed for sanitary purposes, and who are too old to receive impressions of the importance of those things which go to make up and ensure the public health, of the value of which they have not the faintest conception.

Whilst the majority of a sanitary Board consists of such men the doctor and the engineer may whistle their advice to the winds. And it is not a majority of the whole Board that is necessary to this position; a majority of those members who usually attend is sufficient, practically, although not in theory; and these members are the most persistent in their attendance at meetings.

It is pleasing to know that in some Boards these remarks—dragged as they are from the depths of reluctance—have but little application, but it is certainly true that they are applicable to a great many sanitary authorities; and it is in this direction, and in that of the reconstruction of the Sanitary Acts, with a view to meet the actual requirements of the country, that legislative action ought to lie. Then the united action of the engineer, the doctor, and the inspector of nuisances, will soon conquer all the difficulties of the sanitary question; and the actuary, watching the results, will probably be able to prove that the combined efforts of the Boards and their officers have after all saved the money as well as the health of the people. This has been so in some places, and may be in all.

"THE HISTORY OF MODERN ARCHITECTURE."

WE ended our first notice of the new edition of Mr. Fergusson's book with a promise to speak as to the phases of modern architecture treated of in it. Those illustrated at most length are, as might be expected, the styles of Italy, the cradle of the Renaissance, France, and England. Germany, with its corrupt detail in the Renaissance period, and its cold, unfeeling correctness in the Revival, is, not unnaturally, dismissed with a comparatively cursory notice. Of the great movement in Italy, which, in the face of all modern Gothic contempt, must be admitted to have proved its value by the extent and almost universality of the influence it has exercised, the ecclesiastical section, indissolubly associated, as it is, with the greatest Christian temple that has been erected, occupies a large share of our author's attention; and his criticism on St. Peter's, severe as the ordinary reader may consider it, represents what is now at least the deliberate conclusion of nearly all architects and architectural critics. The study of the Italian churches of this period is valuable, however, if not in all cases for their architectural excellence, at least as an antidote to that view of a church as exclusively a Gothic edifice, which has been adopted in modern England.

Every detail of Venetian architecture seems so to partake of the charm of poetic association which hangs over that city of the sea, that it is barely possible to give it an unbiassed criticism; yet it must be something more than association that gives such a rich yet quiet and unpretentious effect to the Pesaro palace, and such a delicate grace and humour to that of the Vandramini. Such buildings indicate the claim of the Italian Renaissance, in this its Venetian form at least, to be recognised as a distinct and original form of architectural expression, in its combinations if not in its separate details, furnishing an expression supplied by no other style of architecture. Less engaging, but equally praiseworthy and truthful in expression, are the great Florentine mansions, also passed in review here; buildings which have furnished not unhappily the key-note to so many modern town structures, though their square mass and formally repeated details look sadly out of place when sliced into country mansions and put down among fields and gardens. This is essentially a town architecture, a form of building typifying opulence and security, with the ease and ostentation that come with opulence. Some of the conditions are repeated in more modern towns, but it would be difficult to say where they have been expressed in buildings likely to be so long and generally accepted as models in their kind, as these Italian "palaces" have been. Of some of the less fortunately conceived forms of the same style in other Italian cities, Mr. Fergusson sums up the merit pretty exactly in saying that, elegant and fanciful as many of them are, it is easy to see how they might have been made ten times more so by a more judicious and tasteful employment of the features made use of. But in regard to the finer productions of Italian architecture of the Renaissance period we shall not find much difficulty, either, in endorsing the rather enthusiastic estimate of its value on Italian soil, made in our author's concluding summary:—

"If the Italians remain true to themselves, no nation in Europe has so fine a chance of attaining perfection in architectural art. Though "the Orders" may not be applicable to all purposes of civil or ecclesiastical buildings, they are at least the native products of the Italian soil; they are suited to the climate, and are hallowed by the associations of the land, but they are not the only elements of the art to which they belong. The misfortune of Italian architecture was that its professors in the sixteenth century studied the remains of the temples,—the domestic and civil buildings had nearly all disappeared,—till they became pedants in their art. . . . Italy has only to go back to the inspirations which characterise the end of the fifteenth and dawn of the sixteenth century, to base upon them a style which will be as beautiful as it would be appropriate to her wants and her climate. If she will only attempt to revive the traditions of the great age which is hallowed by the memories of Leonardo da Vinci and Raffaelle, of Bramante, Sangallo, and even of Michelangelo, she cannot go wrong. These men erred occasionally from inexperience, and because the system under which the art was conducted in their days was such as to render success impossible; but their aspirations were right, and there was an impress of nobleness on their works which has not since been surpassed. . . . . In the present century Italian architecture has been, if anything, French. But now that the country is again a nation and has a future before it, it remains to be seen what her art will become. If the Italians are capable of freedom, and of national greatness, their architecture cannot fail to be a reflex of whatever is great or good in their character or institutions" (pp. 144-5).

These are stirring words, and we would that they could be felt and applied by the modern builders of Italy. But the passage can hardly be read without suggesting the reflection how far the same reasoning applies to our own country, and its modern architecture. The Renaissance reached us chiefly in the somewhat corrupt form of the sixteenth century, against which Mr. Fergusson preaches; but, apart from this, it is not indigenous to the soil. The argument applied to our country in the same manner as to Italy, would lead necessarily to the re-adoption of our indigenous Gothic architecture, which has now been going on for some time, but has not produced many satisfactory results. Looking at the matter in this point of view, however, it is curious to turn to our author's summing-up chapter on English architecture, and read, in place of an exhortation to adopt the style of our great age of architecture, the determined onslaught which is there made upon the modern Gothic revival, in regard to most at least of its developments. Is this logical? To some extent we think it is; at least more so than at first sight would appear. Style and feeling in architecture must be largely influenced by, and related to, education and culture. The rise of what is known as the "Italian" style was coincident with the revival of letters and learning, a revival which spread throughout Europe. But the English Gothic style was prior to this, and had fallen into its decadence before the intellectual revival commenced. It does not, therefore, stand on the same footing in regard to this country as the Italian architecture to Italy; and, at all events, in the crude and rough form which its revival has taken with some of our architects, it is in direct contradiction to the real spirit of the day. Climate, however, is an influence not to be passed over, and perhaps the conjunction of something of the stateliness and uniformity of the Italian style, with the vigour of detail by which Gothic architecture is characterised, may, in combination, result in that *tertium quid*, which Mr. Fergusson desires, but which is, we fear, not a little visionary. In the mean time, it is not to be denied that both the Renaissance and the Gothic revival in England have produced buildings of which we may well be proud. Of one of the most noteworthy of these, the Houses of Parliament, Mr. Fergusson's criticism is full and very just, though by no means altogether favourable. We do not know that the merit of the external treatment of the dome over the central lobby has been quite done justice to in general. Mr. Fergusson observes,—

"Nothing is more truly and essentially Gothic in any modern design than the way in which the stonework is carried up 180 feet above the dome. It is what was done at Chiaravalle, and was intended at Florence, and what Sir Christopher Wren did rather clumsily at St. Paul's; but is here done more truthfully and more elegantly than in any of these, and only misses perfection in so far that its dimensions are necessarily small; and its architect could not combine the full rounded lines of the Classical or Byzantine dome with the straight lines to which Gothic art is unfortunately confined."

Of the productions of the English Renaissance School, it is, as Mr. Fergusson truly remarks, difficult to speak, in consequence of the irregular and wavering course which the style pursued in this country. Here, more than anywhere else, we see that assertion of the individuality of the architect which we have spoken of before as so specially characteristic of the modern school; and it is significant of this that in our author's division of the subject, one long chapter, in two parts, is devoted to "Inigo Jones" and "Wren," and headed with their respective names, instead of any more general nomenclature of style or century. Of the leading architects and their works since Wren, there is a comprehensive summary, accompanied by illustrations, suggestive enough when viewed in relation to each other, and to some of the prevalent building names of the present day. The defects of these works of the second period of the English Renaissance are obvious enough; like the horse in *Punch*, "their faults are all on the surface," but we cannot estimate their good qualities so readily, from a modern point of view. We may complain of, even laugh at, the determination of Vanbrugh to be sublime, and his use of little orders and big orders; but after all, can any one deny the real dignity and grandeur of such a composition as the front of Castle Howard? Such a piece of symmetrical pomp certainly is only suitable to a mansion in every sense of great pretensions; but is it not, to say the least, an open question, whether this, or the modern picturesque style with which the names of Mr. Shaw and others are associated, is the most expressive and suitable for the country mansion of an English nobleman or gentleman of large means? The picturesque home will be more interesting to an artist, just as the variety and *naïveté* of middle-class life will be more interesting to the novelist than the more measured and formal life of a higher rank; but whether the picturesque, either in life or in buildings, is the highest attribute—whether to furnish subject-matter for the artist with pen or pencil is the best end of life—is a consideration the (we should suppose) obvious reply to which is apt to be unfairly evaded in the present day. As to the future of English architecture, Mr. Fergusson is a prophet of evil, and holds out little hope of our emergence from shams and commonplaces; but we trust his view of the matter is darker than is warranted by the actual facts.

The history both of the Renaissance and the revival in France suggests to us how great is the power of habit and association, and that indefinable fluctuating feeling called *taste*, in influencing our approval or disapproval. From the point of view of the present day, it is difficult to conceive how educated eyes in any age could find pleasure in the forms which French "classic" architecture and decoration took at some periods; yet that these were largely admired, and even considered for the time the best that the architect's art could produce, there can be no doubt. It may be well to consider whether the same reflections may not ultimately be made concerning ourselves, and whether some of the more marked styles of building getting popular at present may cause a similar bewilderment to future generations. For the rest, there can be no manner of doubt that the interest of French architecture since the Renaissance centres in the châteaux. The earlier buildings of the period of this class have a peculiar mingling of aristocratic refinement and splendour, with a picturesqueness of style and outline, seldom equalled in the higher class of dwelling-houses. The combination of these two elements having been thus shown to be possible, it is really strange that so little in this way has been attempted by modern architects in this country, and that we so often find the element of dignity

minus the picturesque, or *vice versâ*. In regard to the Louis Quatorze style, however (to return for a moment), we cannot but endorse Mr. Fergusson's recognition of it, with all its faults and vulgarities, as being more emphatically a *style* than most other developments of modern Classic; possessing a unity of feeling and treatment, both in mass, and in detail and ornamentation, which give it a certain claim to respect, relatively, though it must be considered as anything but a desirable style for revival or imitation. The modern French style (the "style of the Empire" it has been called) has in some of its more important examples nothing more to recommend it than the Louis Quatorze, in point of taste, and is inferior in unity of treatment; but here, again, the French have shown themselves at home in Domestic architecture more than in the other branch; and Mr. Fergusson does justice to the grace, refinement, and fitness of design to be found in some of the French town and country mansions, shops, &c., of recent date; though it must be said that these qualities are by no means universally present. Some of the best things of this kind that have been produced in France are very recent, and we should say that at present architectural taste and ability across the Channel are rising in the scale. The new Opera House, of which we recently published a view, forms the vignette to this volume, opposed by our own Westminster Palace as frontispiece. The extraordinary building in Paris, with its wealth of ornament almost erring on the side of extravagance, its able treatment of detail in many points, and its unmistakable expression of outward show and assertion, certainly stands as, in many respects, only too true a type of the extraordinary period of Parisian life and *politique* under which it has mainly arisen. If this and the Westminster Palace are taken as the typical representatives of modern architecture in the two countries to which they belong, the contrast is a startling one. They can hardly be taken so, however, *sans phrase*, but no doubt they are the two buildings on which most cost has been lavished in each country, and which have excited the greatest amount of public interest. Æsthetically considered, it might be difficult to say which is the most valuable; but there cannot be much doubt that the French building exhibits a detail more intellectual and more suited to the tastes of the age. In regard to general *coup d'œil*, the palm would almost certainly be given to our own building; and as regards the sentiment of the two, the national feeling to which they give expression, there can scarcely be a comparison. But it is fair to remember that the new Opera House is the expression of Parisian rather than of national taste; Parisian, too, under an epoch of peculiar tendencies and peculiar temptations. There is still room for modern France to have its *great* building expressive of something better than mere love of pleasure and of show.

We seldom think of the Classic revival in relation to any part of the world except Western Europe. Mr. Fergusson's short chapters on the forms which it has taken in Russia and Turkey, as well as India and America, have, however, considerable interest, and suggest the possibility of new combinations on new soils. America, indeed, has done little enough in this way; such novelty as there is in her "Classic" architecture resulting mainly from the fact that we see old materials used with so much less refinement or architectural feeling than we have been accustomed to see in the best specimens of European architecture. Some of the specimens of modified Renaissance in India are, however, peculiarly interesting, even when not very successful, as showing the Oriental method of reading the language of European architecture. One building figured by Mr. Fergusson (p. 480), not the work, indeed, of a native Indian, but of an Anglo-Indian officer working entirely under the influence of Oriental life and habits,—the "Martinière" at Lucknow,—contains, as Mr. Fergusson truly remarks, "the germ of a very beautiful design"; so much so, indeed, that it would be quite worth while for a competent and educated architect to work out the same idea with better balance and refinement of detail.

Our author's opinions as to the present constitution of architecture, and the chances of its future development into a new style, are summed up in his "conclusion," and are too well known to those who have any interest in the subject to need recapitulation here. But we think Mr. Fergusson, in pressing for a return to the old paths, is ignoring the immense obstacles there are in the way of any such result, in the totally altered conditions of modern life. Even he, probably, does not dream of a *European* style, but of a style for each country, suited to its own needs, and aiming at one consistent end. But the multiplicity of modern life and modern ideas seems to render this impossible. The Gothic in the Middle Ages was really a European style, with comparatively unimportant local variations. The Renaissance bid fair to be a European style at starting, but the era of individuality had already commenced, and the names of single architects had begun to be recognised for their peculiar method of design and treatment. And now that the knowledge of all styles that ever existed is becoming so diffused, we can hardly expect to put a check on this individuality; we cannot expect to revive the mechanical working out of one style carried on by men whose minds had no immediate access to any other type of architecture. Mr. Fergusson says, in conclusion: "We have more wealth, more mechanical skill, more refinement [?] than any nation, except, perhaps, the Greeks; and taste (even if not innate) may result from the immense extent of our knowledge." This latter remark may be true, but it is just that very extent of knowledge which disturbs, and is likely to disturb, all our efforts at unity of aim and of style. Whether such unity would really be in every respect, or in most respects, a gain, is a question we will not here attempt to answer, contenting ourselves with pointing out that it is a matter of question. There is, perhaps, as much intellectual interest in the modern collection of lyrics as in the ancient national epic, only it is of a different order.

SELECT COMMITTEE ON THE METROPOLITAN BUILDINGS BILL.

AMONGST the witnesses examined on behalf of the promoters of the Bill, Mr. John Brookes Johnson, secretary in London of the Royal Insurance Company, said that he had had extensive experience in inspecting buildings, and ascertaining their mode of construction, that in his opinion the present limit of 216,000 cubic feet in warehouses was ample, and that an extension would involve danger not merely from the particular risk, but also from surrounding risks. For all the more modern buildings of the warehouse class 216,000 cubic feet was practically observed, and it was the limit that the insurance offices adopted. With respect to horizontal divisions in warehouses, as opposed to vertical divisions, limiting the space, he considered the former to be futile except there were brick arches on brick supports. The fires at Messrs. Taplin's in Gresham-street, Messrs. Waterlow's in Finsbury, and the City Flour-mills, were cases in point. With regard to Mansard roofs in warehouses he considered that they greatly increased the risk of fire. If there was more than one story in a roof, it was practically a timber building over a massive structure.

Mr. Edward Middleton Barry, architect, professor of architecture at the Royal Academy, said it was desirable in his judgment to consolidate and amend the existing law in several respects. He had endeavoured to form an opinion on the Bill laid before him, and without answering for every detail of it, it seemed to him to have been conceived in the public interest, and therefore he spoke in its favour so far. He thought the provision retained in the Bill by which the Institute of British Architects had the privilege of examining candidates for the office of district surveyor was a wise one. The Institute would have had a grievance in any proposal to omit that clause. He agreed with the provisions in the Bill with regard to the necessity of the separation of buildings in order to prevent the spread of fires. The limitation of the cubical contents of buildings was a question of public safety to be determined by those who were responsible for that particular duty. It was scarcely an architectural question. Building being a variable and changing, and possibly an improving science, if a limit of any kind was desirable in the interests of the public, he thought it was necessary that there should be a power of dispensing with that limit in exceptional cases. He considered that a power of giving elasticity to the rules was absolutely necessary. As far as Western London was concerned, he thought that such power should be vested in the Metropolitan Board of Works. In his judgment horizontal divisions in buildings, in lieu of vertical divisions, were insufficient. So far as roofs were built of wood, they must always constitute a vulnerable part of a building. With respect to the height of buildings, it seemed to him that there must be a limit of some kind. It could not be tolerated, for example, that everybody should build his house of the height of the Victoria Tower; therefore a limit of some kind must be imposed. Of course it was always difficult to name any particular limit. The Bill prescribed 65 ft., and it was difficult to say why it should not be 64 ft. or 66 ft. All he could say was that 65 ft. appeared to be a reasonable limit, looking to the ordinary requirements of houses likely to be built under that rule. He perfectly understood that the rule only applied to buildings to be erected in streets that were now. It was not to interfere with the raising of buildings where the street was an existing street. He was quite aware that by the existing law, except a church or a school, a building could not be erected in a new street which was less than 50 ft. wide, of a greater height than the width of the street; and to that extent he understood that the rule now proposed was a relaxation of existing restrictions. As he thought it might assist the committee, he had obtained some particulars as to the heights of houses in different parts of London. The witness then handed in sheets showing private houses of less than 65 ft. in height, and also houses that were more than 65 ft. high. Of the houses less than 65 ft. high, one was in Eaton-place; another in Westbourne-terrace; another Lord Ellesmere's house, in St. James's, Bridgewater House, which was 63 ft. 6 in.; another was the centre house of Oxford-square; another in Eaton-square; another was one of the largest houses at Lancaster-gate, in which Mr. Lucas, the contractor, resided. Mr. Cubitt's houses, Palace-gate, were under 60 ft. Then he had shown 8, 9, and 10, Grosvenor-place, not the centre nor the pavilions; Belgrave Mansions, Pimlico, and the new houses in Grosvenor-crescent. All these were under 65 ft., measured as the Bill stated. Of these there was a story above that. They measured to the eave of the roof, and consequently they allowed a story in the roof. He had measured it, as he believed the Bill had measured it, and he had the sections.

In answer to Mr. Goldsmid as to whether the extra story in the roof was to be included in the 65 ft., the witness stated that that was not, as he understood it.

Mr. Goldsmid.—That is as the Bill is drawn.

Mr. Philbrick.—It may be so, but we do not intend that. The height of the wall is to be measured up to the eaves.

The witness then described the houses in his list that were above 65 ft. The first were the large houses at Albert-gate; then the large houses in Grosvenor-place, which were 70 ft. 6 in.; Sefton House, in Belgrave-square, 69 ft. 6 in. There were also houses in Lowndes-square, Grosvenor-place, and Grosvenor-gardens, all of which were more than 65 ft. He had also another class, showing what he called exceptional buildings, some of very great height. There was the Charing-cross Hotel, of which he was architect. The front portion of that was 70 ft. 3 in., and other parts were higher. Cannon-street Hotel was 77 ft. The Houses of Parliament were 62 ft. 6 in., with the exception of the wings, and the centre portion of the river front; Westminster-chambers, Victoria-street, were 64 ft. 5 in.; and the Reform Club, 67 ft. 9 in.

The Chairman.—Where is the provision that it is to be 65 ft. irrespective of any story in the roof?

Mr. Philbrick.—In clause 70, which says, "Shall not exceed 60 ft. measured from the lowest level of the adjoining footway, or pavement, or ground, to the eaves of the roof." Then in the next section it provides that where the street is 40 ft. wide, the height may be not exceeding 65 ft.

The Chairman.—Will you exactly explain what is meant by the eaves of the roof, because in the case of a Mansard story the eaves of the roof would be about the level of the Mansard windows?

Mr. Barry.—Not quite; that would be the parapet. Of course where there are projecting eaves you measure immediately up to the gutter. Where there is a parapet, I should still measure to the gutter, assuming the intention to be to measure to the bottom of the parapet.

The Chairman.—When there is a Mansard roof over the parapet?

Mr. Barry.—Where there is a parapet, the Mansard roof is not over it, but behind it.

The Chairman.—But higher?

Mr. Barry.—A roof is supposed to be allowed in addition to the dimensions.

Mr. Philbrick.—These are exclusive of the roof?

Mr. Barry.—Yes.

Mr. Goldsmid.—So that the Charing-cross Hotel, which is really over 100 ft. high, is only 70 ft.?

Mr. Barry.—That is an excepted building altogether under the present Act, and would be excepted under the new Act as a railway building.

Mr. Samuda.—If we are to take this to guide us as to what we are legislating in comparison with, we must ascertain what would be the result of taking those as our examples. We shall deceive ourselves altogether if we do not get quite clear upon this question.

Mr. Philbrick.—At present these heights which are shown under 65 ft. would all be permitted under the present Bill, and one story above them?

Mr. Barry.—That is as I understand.

Mr. Samuda.—And as I understand, too, Mr. Barry, dwelling-houses, without the special leave of the Board?

Mr. Barry.—Without the special leave of the Board.

The witness, in continuation, said he had one other table, showing the height of some houses in Paris. Mention was made of the houses in Paris; so he referred to a book which he purchased in 1871, showing some of the most remarkable houses in Paris, built by different architects, and as he thought it might be interesting to the committee, he had reduced it to a sheet and tabular form. He should state that it was almost universal in Paris to have two stories in the roof. There is a house in the Boulevard Sebastopol 58 ft., and another 57 ft.; another in the rue de la Chausée d'Antin, 58 ft. 4 in.; one in the rue Sainte Placide, 53 ft. 3 in.; the Hôtel La Carrière, rue de Vendôme, 62 ft.; Place du Prince Eugène, 52 ft. and 55 ft. 9 in.; and another in the Avenue des Champs Elysées, 54 ft. up to the parapet.

The Committee here adjourned.

The Committee resumed their sittings on Tuesday, when the evidence of Mr. Barry was continued. He said that in addition to the houses which he instanced at the last meeting as being less than 65 ft., by permission of Sir James Hogg he had added his house to the list. It was a new house in Grosvenor-gardens, and the height of it was 60 ft. 3 in. After showing that there were comparatively few houses in the metropolis more than 65 ft. in height, he said that as first-class houses were now built, the great majority of them would, if they were in new streets, fall within the regulation, and not require exemption; and assuming a limit to be imposed, 65 ft. appeared to be a reasonable limit. He did not think that the restriction in the new streets proposed as to the height of buildings would be prejudicial in an architectural point of view, whilst he was of opinion that it would be desirable in a sanitary point of view. The witness was next examined as to the railways and the construction of premises underneath railway arches. He said he thought that the general question of the exemption of railways was a very important one, and he had a very strong opinion that the exemptions ought to be strictly limited. As a general rule of policy, exemptions from an Act passed in the public interest ought to be very jealously regarded, and very strictly construed, and he thought that the circumstances at the present moment were different in many ways from those which were foreseen when the exemptions were granted to railway companies. The wooden Custom-house, for instance, at Charing-cross Station, was a building exempted from the existing law. It was burnt down, setting fire to the station, and causing great alarm at the time. At the present moment it had not been rebuilt. The circumstances under which the Legislature granted exemptions to railways in respect of their buildings have entirely changed. So long as railways kept out of towns, the question of building was not an important one. But now they were all coming into the very heart of London, and they were erecting buildings of enormous size, and of great importance, and the question of the rules applicable to them, therefore, became a very different thing. They were also acquiring property of various kinds, and were becoming landlords,—the thousands of railway arches, for example. The rules that were applicable to buildings had been laid down by the Legislature, not for the advantage of any individual, or any special interest, but in the public interest. Either they were necessary or they were unnecessary in that respect. If they were necessary, why should the railway companies not observe them? If they were unnecessary, why should other landlords be compelled to observe them? The Bill, as he took it, would exempt railway buildings not used for the purposes of their traffic, and his argument would go still further than the Bill, because the public had a very great interest in the station buildings themselves being such as they ought to be. After referring to the fire which broke out at the Charing-cross Station, in the wooden building already referred to, on the 18th of February, 1868, and which at one time threatened the destruction of the station, he said that where a structure of wood in a railway building was for any purpose of a *quasi* permanent character, and not specially for the working of the railway, he thought it ought to be brought within certain rules for the public safety. Where railway arches were enclosed and let out, he thought that they should be of brick or some fire-resisting non-conducting material. This he deemed very important. He was in a railway arch the other day, and saw there three kilns used for pottery purposes, and he was told that the daily consumption of fuel was about a ton. There were certain dangers, as they all knew, inseparable from railway travelling; but he did not see why a railway company should be allowed to create other dangers, such as the building of combustible stations. The Victoria Station, for example, was one mass of combustible materials, and it positively touched the great hotel at the side. The witness was next examined on structures which came within the class of public buildings, and stated that in his judgment it was desirable that there should be some power to secure proper means of exit and access in case of fire. The question of the access staircases, and more particularly of the exits from public buildings, was one of the very greatest importance. He thought it desirable that public buildings should be controlled in the sense in which they would be controlled by the clause in the Bill. [This clause refers to the width, strength, and security of lobbies, corridors, passages, staircases, and other partitions of public buildings.] The next point upon which the witness was examined was the clause in the Bill with reference to piers for the purpose of supporting the superstructure of a building in cases where a building enclosed with walls is constructed so as to leave, on the ground story, and on stories above it, an extent of opening greater than one half of the whole extent of the vertical face or elevation of the wall or walls in which the opening is left. He agreed with the clause. It appeared to him that it did not seem to limit the area of the opening half the width of the wall, but a provision to extend it under certain circumstances.

There was considerable discussion on this point, several members of the Committee, including Mr. Samuda and Sir James C. Lawrence, contending that these piers were unnecessary.

Sir James Lawrence said he observed from Mr. Barry's answer that in case the weight above required something to support the iron girder, that support should not, as it had hitherto been, be an iron column or an iron stanchion, but that a brick pier should be prescribed by the Act, thereby narrowing the shop-front, and dividing it in two, and preventing in future any shop-fronts at all.

Mr. Barry.—If I may refer to your allusion to my answer, it does not say that the pier is to be of brickwork, but it says, "other fire-resisting material."

Sir James Lawrence.—What other piers can you have except brick or stone?

Mr. Barry.—The 48th page will give you several fire-resisting materials, including "iron being protected by plastering in cement, or any other incombustible or non-conducting external coating"; iron is there specified. What may have been the intention of the clause I do not know, but I read it as I have said.

Sir James Lawrence.—It could not be read by the legal mind in any form that a column could be called a pier.

Mr. Philbrick.—It is intended to get rid of structures supported by iron columns, simply because of the danger, but it is not intended necessarily that the pier should be put anywhere except where it will carry the superstructure.

In answer to further questions, the witness stated that the present limit of 40 ft. for carriage traffic, and 20 ft. for foot traffic should be maintained. In answer to a question as to the cubical contents of buildings not of the private dwelling-house class, the witness said that the limitation of the size of buildings, apart from the question of height, as to which other sanitary points might be mentioned, appeared to him to be a question of public safety, with reference to fire, and that upon that point he should individually defer very much to the opinions of those who were responsible for the protection of the public against fire. Mr. Barry's evidence in chief concluded after his having stated that he agreed with those clauses in the Bill under which better bricks than those now used in building in the metropolis would be guaranteed; Mr. Philbrick observing, on the part of the promoters of the Bill, that there were many places in the metropolis where buildings were erected with "bricks which you may stick your finger or the point of your umbrella into."

The witness was cross-examined at considerable length by Mr. Little, on the part of the railway companies, and by Mr. Webster, Mr. Mellor, Mr. Onslow, and Mr. Mackrell, on behalf of the several petitioners against the Bill.

Mr. George Vulliamy, superintending architect of the Metropolitan Board of Works, was then examined. Mr. Vulliamy's evidence, which was given in minute detail, and at considerable length, was confined to the history and working of the existing Acts, and to the difficulties with which the Metropolitan Board have to contend in not having larger powers. In the course of his evidence, he cited numerous instances in which the Board were powerless, and required additional legislative authority. His evidence in chief had not closed when the Committee rose.

The Committee re-assembled on Wednesday, when Mr. Vulliamy's evidence was continued, and lasted almost throughout the day.

SANITARY CLAUSES IN THE PROPOSED BUILDINGS BILL.

A MEETING of the Health Committee of the Social Science Association was held on Tuesday last, Mr. Godwin in the chair, to consider the desirability of endeavouring to obtain the introduction of clauses in the Metropolitan Buildings Bill to ensure ventilation of houses and sewers, and other sanitary arrangements.

After some discussion, in which the opinion expressed was to the effect that the Bill did not go far enough in a sanitary direction, it was resolved that a memorial should be addressed to the Board of Works, and a petition to the House of Commons, calling for the introduction of the clauses alluded to above; Mr. Thos. Webster, Q.C., Dr. Hardwicke, and Dr. Shrimpton being deputed to draw them up. Mr. Liddle, Mr. Clode, Dr. Ryall, Mr. Sneade Brown, and others, besides those named, also took part in the proceedings.

PAINTING ON POTTERY.

THE Council of the Art-Union of London have awarded the premium of 35*l.*, offered for a design for the ornamentation of a tazza, to a work found to be by Mr. R. J. Abraham, of the Art-Training School, South Kensington. In this design the interior of the tazza and the circular foot are each divided into eight compartments, ranged round a circular centre, having backgrounds of red and blue alternately, covered with Renaissance ornament; the bands dividing the panels being black, and enriched with coloured and gilt scroll-work.

The premium of 15*l.* was awarded to a design representing Pandora in the act of opening a vase, from which "she scatters ills in air." This was found to be by Mr. J. Eyre, 102, Adrian-terrace, West Brompton.

Statue of Lord Brougham.—The subject of a memorial in commemoration of the services of the late Lord Brougham has been for some time under the consideration of a committee of the Social Science Association and the Law Amendment Society. At a meeting, over which the Lord Chief Baron Kelly presided, it was agreed to adopt, as the most fitting memorial, the proposal to erect a statue in Westminster Abbey, or some other suitable place, and a sub-committee has been appointed to make the necessary inquiries.

LACE.

AMONG the old arts which have excited of late a revived interest, that of lace is one of the latest in the field of popular favour; but the progress and spread of this particular "taste" has been rapid, and it bids fair to have as many and as enthusiastic devotees as have paid their worship at the shrines of old china or illuminated manuscripts. The notice attracted to some of the old styles of lace has given, to a certain extent, a fresh impulse and energy (though not always in a right direction) to an art which had never fallen through in this country; while the ambition to procure fine specimens of "old point" is becoming a sort of rivalry among fair collectors, almost to the extent of justifying again Dr. Johnson's comparison in regard to a branch of learning,—"Greek, sir, is like lace; every one gets as much of it as he can." The commissioners of the International Exhibition, at least, have, on this principle, got as much as they can, and the result is a large and interesting collection of examples of lace, antique and modern, which serve to illustrate very fully the capabilities of this fascinating branch of decorative art, and the various methods, of greater or less excellence of result, in which it may be manipulated.

Lace has been not inaptly described as "movable embroidery," — ornamental work, which can be removed from one dress to another, and on which, therefore, it is worth while to spend more time, skill, and design than it would do to spend on that which could only be used on one garment, and by one wearer; and it is only on this condition of movability, so to speak, that lace could have become an art product and a valuable property to the extent which it is. It is not our purpose here to speak of the history of lace, or to give a list of the different styles which have succeeded each other, somewhat like the styles of Mediæval architecture; such categorical information can be found elsewhere, and would be scarcely in place here. But the subject is quite worth a few words of criticism, from the artist's and ornamentist's point of view.

The most important varieties of lace, speaking broadly, are those which are classed as *point* lace and *pillow* lace respectively. To the uninitiated the first phrase sometimes occasions a confusion of idea from its being used as if it were the English word "point," instead of the French *point* ("stitch"). The word simply means lace entirely worked with the needle, as distinguished from that which is worked on a pillow by the aid of the fingers and "bobbins," and now in great measure by machinery. The style of design may be, and often is, very similar in these two branches of the art, the difference in that case being mainly in the manner of execution,—a difference which at a little distance can hardly be detected; but in their most typical forms the two methods produce a widely different character in their results. The most distinguishing character of the best point lace, in regard to manner of execution, is in the raised edges to the solid part of the design, which give a relief and substance to it quite distinct from the most characteristic and finest forms of pillow lace, which is marked, on the contrary, by its flat, thin, delicate texture, and absence of relief. The raised edges in the "point" consist of two or more threads placed together and "sewed" round with finer thread, the degree of relief depending of course on the number and thickness of the threads forming the basis; in some of the old Spanish examples to be seen at the International these raised edges are worked up to an extraordinary degree of relief compared with what we are used to in modern specimens. But a much more important æsthetic distinction is that between lace which is worked on a ground (*fond*) of uniform network (or so connected by a ground as to appear as if worked on it), and that in which the main features of the pattern are connected by irregularly-placed lines (*brides*), leaving the interspaces comparatively open. All the finest lace of the best periods belongs to this latter manner; the typical *point* lace having its main lines of construction laid down first, filled in, and then connected in the manner alluded to. And it is scarcely out of place, one may observe, to use something of an architectural phraseology here, for the development of the older schools of lace design reminds the architect forcibly of the growth of Gothic tracery, and follows a very similar sequence. The first lace is what would be now called "embroidery," merely consisting of a pattern perforated in linen or other stuff, and the edges of the perforations worked round with a raised margin; this being manifestly the "plate-tracery" period. Then a somewhat rude attempt at a more free manner of working shows itself in the *reticella* lace, in which the design is formed by threads laid down in groups of two or three, for the main lines of the design, upon which the prinipal features are produced by thickening out with successive layers of thread, using the first lines as a core. This *reticella* may be recognised at once by its formality of general design, accompanied by a lumpy irregular execution in detail, the whole having a considerable resemblance to certain kinds of seaweed. About the middle of the sixteenth century, the introduction at Venice of the point lace system at once gave opportunity for freedom, and finish at the same time, and introduced the most elaborate style of "tracery." But it is obvious that lace design worked on a uniform ground, belongs to a very different type of work to any of these; a point which we notice, the rather because M. C. Blanc, in his article on lace, in a recent number of the *Gazette des Beaux Arts*, seems to ignore this very important distinction, speaks of lace as if it were entirely the art of working on a ground, and is eloquent, with more zeal than knowledge, on the vast importance of the *fond* in determining the character and effect of the whole. The fact is that, though very beautiful and delicate lace of this type is produced in England and at Brussels, it belongs essentially to the tamer and less effective style of the art, and is the mode employed in the flimsy stuff called *Valenciennes*, in which the art is degraded to the mere spotting of net muslin with unmeaning sprigs and flowers.

The question as to the kind of objects which may be represented in lace, and the nature of the design which is suitable to it, is closely connected with the success of the result. There can be no manner of doubt that imitation of any objects which suggest the idea of weight and solidity is completely out of place in a fabric part of the charm of which lies in its transparent lightness of texture and appearance: though this has been done, and there are curious old examples in which figures, ships, animals, vases, &c., play a part in the design with somewhat ludicrous effect, especially when seen distorted by the folds into which the material falls when worn. And it is equally certain that anything like shading or relief is out of place in such a material. Putting aside such things, however, there are two ways of treating lace, for each of which something may be said, and which may be called the natural and the artificial manner. The natural, which has always been much followed in English manfacture, and is also largely illustrated in modern Brussels work, consists in designs generally based on imitations more or less close of sprays of leaves and flowers, worked with no attention to symmetry or design in the usual sense of the word; the object being to avoid any definite arrangement, and rather to produce that kind of light indefinite effect which is held by many makers and critics to be peculiarly proper to lace design. What we call the artificial method is illustrated in a good deal of the old Venetian and Spanish *point*, and consists in the elaboration of patterns having no direct reference to any natural objects, and seeming at first sight to be very irregular, though in fact arranged on a fixed plan and with a recurring symmetry. The artificial method may, however, be carried farther than this, and is so especially in the Brazilian and Russian designs, of which latter there are in the International some admirable specimens and photographs lent by the Duchess of Edinburgh. The question whether such symmetrical designs are really suitable for lace depends a great deal more on certain details of execution than on the general design. No doubt a perfectly hard and formal line is out of keeping with the character of the material; but this can always be avoided and its harshness removed by the slight irregularities and points which can be added, sometimes on a very small scale, to the defining or connecting threads of the design: by these little minutiæ all stiffness is avoided, and we obtain that variety and doubtfulness of line which gives the requisite freedom and richness to the general effect, without foregoing the unquestionable advantage of a regularly constructed design. Interesting and beautiful, however, as these geometrical designs from the far East and West are, we shall probably come to the conclusion that the right medium was hit by the makers of the old Italian and Spanish *point*, who enchained the eye by patterns which seemingly irregular, yet really formed on a regular plan, have in them more of the spirit of Saracenic ornament than anything else which has been produced in Europe.

Our remarks may be best illustrated by reference to some of the examples contributed to the International Exhibition, a reference which would be more readily and intelligibly made, however, if the numbering of the specimens were more systematically carried out. The numbers are not in regular sequence, and the same number is found occasionally on two or three cases, and none at all on others. Commencing at the south end of Gallery XV., we find the cases next the door on each side occupied by the valuable and varied collection of specimens (chiefly) of old lace, lent by Mrs. Hailstone, and which form the most interesting item in the Exhibition. The case to the right on entering contains mostly small pieces (borders and "insertions") of old Italian lace, among which some strips of *point*, worked with tape and with braid, are perfect in style, and precisely illustrate the nature and degree of symmetry which, as we observed, can be successfully carried out in lace design. The Brussels cushion lace, in the same case, is a very good specimen, very characteristic in style, and an interesting contrast to the Italian work. The case to the left of the doorway contains some specimens of Italian and of the Greek knotted lace, remarkably geometrical in character, and which assimilates somewhat in style to the bits of Brazil work in the same case. It is a pity that Brazilian lace is not much represented anywhere here, for it is most individual and artistic in character. The Mexican lace, in the same case, also belongs to the same school, and suggests geometrical patterns. Compared with these, the bits of Mechlin and old English point look very frivolous, though interesting as contrasts. Just above this case, against the west wall, is a sampler, with small bits of lace of various patterns arranged in a kind of panel fashion, and evidently originally done as specimens of various kinds of work. This is dated 1618, and is a most beautiful and rare little bit of work, in regard to texture and artistic effect. The lady who exhibits all these specimens evidently knows what is really and artistically valuable in lace design. Going up the west side of the room, we find in case 5,024 (which contains also a wax model of a baby, placed there for no evident reason) a splendid specimen of Spanish point, with a bold and free conventional leaf pattern, with very wide openings and large strong *brides*. In a case next to this is an antique Brussels coverlet, in somewhat the same style of design, but less bold, and with smaller openings. The Spanish is the boldest and grandest type of lace to be found here; and when we look at these broad surfaces of rich, flowing patterns, with their thick, heavy, raised margins, we cannot but connect such work with the character (in the sixteenth and seventeenth centuries) of the people who made and wore it. Only a people of such pride of pedigree, such a love of pomp and splendour, as the old Spanish grandees and their families, could have adequately looked the part when habited in dresses decorated with these heavy and ambitious trimmings. In an adjoining case, higher up, we find the splendid piece of Venetian point lent by Mrs. Morrison, a design of flowing flower-patterns interrupted by spaces of more conventional ornament, symmetrical in design, but not symmetrically placed. Less striking in one sense than the Spanish, this is more refined and more artistic work, the Spanish point being to some extent a corruption of the Venetian style. Some of the Flanders lace, with its large straggling patterns and great openings, in a very bold style, seems again very like a further corruption of the Spanish manner, which fancy may connect fairly enough with the Spanish dominion or interference in the Low Countries. In the case of things lent by Mrs. Bolckow (1,520) is a Venice point priest's robe, notable for its beautiful workmanship, and the contrast between the plain linen in the upper parts of the sleeves and body, and the intricate open work below. The designs in the photographs of Russian lace, in the centre case near here, should be looked at, as most suggestive in regard to their treatment of geometric design, regular and yet not formal. The long centre case next to this, of "real Bruxelles lace," with a portrait of the Queen of Belgium in the middle, contains a great quantity of most

Mr. Barry.—Where there is a parapet, the Mansard roof is not over it, but behind it.

The Chairman.—But higher?

Mr. Barry.—A roof is supposed to be allowed in addition to the dimensions.

Mr. Philbrick.—These are exclusive of the roof?

Mr. Barry.—Yes.

Mr. Goldsmid.—So that the Charing-cross Hotel, which is really over 100 ft. high, is only 70 ft.?

Mr. Barry.—That is an excepted building altogether under the present Act, and would be excepted under the new Act as a railway building.

Mr. Samuda.—If we are to take this to guide us as to what we are legislating in comparison with, we must ascertain what would be the result of taking those as our examples. We shall deceive ourselves altogether if we do not get quite clear upon this question.

Mr. Philbrick.—At present these heights which are shown under 65 ft. would all be permitted under the present Bill, and one story above them?

Mr. Barry.—That is as I understand.

Mr. Samuda.—And as I understand, too, Mr. Barry, dwelling-houses, without the special leave of the Board?

Mr. Barry.—Without the special leave of the Board.

The witness, in continuation, said he had one other table, showing the height of some houses in Paris. Mention was made of the houses in Paris; so he referred to a book which he purchased in 1871, showing some of the most remarkable houses in Paris, built by different architects, and as he thought it might be interesting to the committee, he had reduced it to a sheet and tabular form. He should state that it was almost universal in Paris to have two stories in the roof. There is a house in the Boulevard Sebastopol 58 ft., and another 57 ft.; another in the rue de la Chaussée d'Antin, 58 ft. 4 in.; one in the rue Sainte Placide, 53 ft. 3 in.; the Hôtel La Carrière, rue de Vendôme, 62 ft.; Place du Prince Eugène, 52 ft. and 55 ft. 9 in.; and another in the Avenue des Champs Elysées, 54 ft. up to the parapet.

The Committee here adjourned.

The Committee resumed their sittings on Tuesday, when the evidence of Mr. Barry was continued. He said that in addition to the houses which he instanced at the last meeting as being less than 65 ft., by permission of Sir James Hogg he had added his house to the list. It was a new house in Grosvenor-gardens, and the height of it was 60 ft. 3 in. After showing that there were comparatively few houses in the metropolis more than 65 ft. in height, he said that as first-class houses were now built, the great majority of them would, if they were in new streets, fall within the regulation, and not require exemption; and assuming a limit to be imposed, 65 ft. appeared to be a reasonable limit. He did not think that the restriction in the new streets proposed as to the height of buildings would be prejudicial in an architectural point of view, whilst he was of opinion that it would be desirable in a sanitary point of view. The witness was next examined as to the railways and the construction of premises underneath railway arches. He said he thought that the general question of the exemption of railways was a very important one, and he had a very strong opinion that the exemptions ought to be strictly limited. As a general rule of policy, exemptions from an Act passed in the public interest ought to be very jealously regarded, and very strictly construed, and he thought that the circumstances at the present moment were different in many ways from those which were foreseen when the exemptions were granted to railway companies. The wooden Custom-house, for instance, at Charing-cross Station, was a building exempted from the existing law. It was burnt down, setting fire to the station, and causing great alarm at the time. At the present moment it had not been rebuilt. The circumstances under which the Legislature granted exemptions to railways in respect of their buildings have entirely changed. So long as railways kept out of towns, the question of building was not an important one. But now they were all coming into the very heart of London, and they were erecting buildings of enormous size, and of great importance, and the question of the rules applicable to them, therefore, became a very different thing. They were also acquiring property of various kinds, and were becoming landlords,—the thousands of railway arches, for example. The rules that were applicable to buildings had been laid down by the Legislature, not for the advantage of any individual, or any special interest, but in the public interest. Either they were necessary or they were unnecessary in that respect. If they were necessary, why should the railway companies not observe them? If they were unnecessary, why should other landlords be compelled to observe them? The Bill, as he took it, would exempt railway buildings not used for the purposes of their traffic, and his argument would go still further than the Bill, because the public had a very great interest in the station buildings themselves being such as they ought to be. After referring to the fire which broke out at the Charing-cross Station, in the wooden building already referred to, on the 18th of February, 1868, and which at one time threatened the destruction of the station, he said that where a structure of wood in a railway building was for any purpose of a *quasi* permanent character, and not specially for the working of the railway, he thought it ought to be brought within certain rules for the public safety. Where railway arches were enclosed and let out, he thought that they should be of brick or some fire-resisting non-conducting material. This he deemed very important. He was in a railway arch the other day, and saw there three kilns used for pottery purposes, and he was told that the daily consumption of fuel was about a ton. There were certain dangers, as they all knew, inseparable from railway travelling; but he did not see why a railway company should be allowed to create other dangers, such as the building of combustible stations. The Victoria Station, for example, was one mass of combustible materials, and it positively touched the great hotel at the side. The witness was next examined on structures which came within the class of public buildings, and stated that in his judgment it was desirable that there should be some power to secure proper means of exit and access in case of fire. The question of the access staircases, and more particularly of the exits from public buildings, was one of the very greatest importance. He thought it desirable that public buildings should be controlled in the sense in which they would be controlled by the clause in the Bill. [This clause refers to the width, strength, and security of lobbies, corridors, passages, staircases, and other partitions of public buildings.] The next point upon which the witness was examined was the clause in the Bill with reference to piers for the purpose of supporting the superstructure of a building in cases where a building enclosed with walls is constructed so as to leave, on the ground story, and on stories above it, an extent of opening greater than one half of the whole extent of the vertical face or elevation of the wall or walls in which the opening is left. He agreed with the clause. It appeared to him that it did not seem to limit the area of the opening half the width of the wall, but a provision to extend it under certain circumstances.

There was considerable discussion on this point, several members of the Committee, including Mr. Samuda and Sir James C. Lawrence, contending that these piers were unnecessary.

Sir James Lawrence said he observed from Mr. Barry's answer that in case the weight above required something to support the iron girder, that support should not, as it had hitherto been, be an iron column or an iron stanchion, but that a brick pier should be prescribed by the Act, thereby narrowing the shop-front, and dividing it in two, and preventing in future any shop-fronts at all.

Mr. Barry.—If I may refer to your allusion to my answer, it does not say that the pier is to be of brickwork, but it says, "other fire-resisting material."

Sir James Lawrence.—What other piers can you have except brick or stone?

Mr. Barry.—The 48th page will give you several fire-resisting materials, including "iron being protected by plastering in cement, or any other incombustible or non-conducting external coating"; iron is there specified. What may have been the intention of the clause I do not know, but I read it as I have said.

Sir James Lawrence.—It could not be read by the legal mind in any form that a column could be called a pier.

Mr. Philbrick.—It is intended to get rid of structures supported by iron columns, simply because of the danger, but it is not intended necessarily that the pier should be put anywhere except where it will carry the superstructure.

In answer to further questions, the witness stated that the present limit of 40 ft. for carriage traffic, and 20 ft. for foot traffic should be maintained. In answer to a question as to the cubical contents of buildings not of the private dwelling-house class, the witness said that the limitation of the size of buildings, apart from the question of height, as to which other sanitary points might be mentioned, appeared to him to be a question of public safety, with reference to fire, and that upon that point he should individually defer very much to the opinions of those who were responsible for the protection of the public against fire. Mr. Barry's evidence in chief concluded after his having stated that he agreed with those clauses in the Bill under which better bricks than those now used in building in the metropolis would be guaranteed; Mr. Philbrick observing, on the part of the promoters of the Bill, that there were many places in the metropolis where buildings were erected with "bricks which you may stick your finger or the point of your umbrella into."

The witness was cross-examined at considerable length by Mr. Little, on the part of the railway companies, and by Mr. Webster, Mr. Mellor, Mr. Onslow, and Mr. Mackrell, on behalf of the several petitioners against the Bill.

Mr. George Vulliamy, superintending architect of the Metropolitan Board of Works, was then examined. Mr. Vulliamy's evidence, which was given in minute detail, and at considerable length, was confined to the history and working of the existing Acts, and to the difficulties with which the Metropolitan Board have to contend in not having larger powers. In the course of his evidence, he cited numerous instances in which the Board were powerless, and required additional legislative authority. His evidence in chief had not closed when the Committee rose.

The Committee re-assembled on Wednesday, when Mr. Vulliamy's evidence was continued, and lasted almost throughout the day.

SANITARY CLAUSES IN THE PROPOSED BUILDINGS BILL.

A MEETING of the Health Committee of the Social Science Association was held on Tuesday last, Mr. Godwin in the chair, to consider the desirability of endeavouring to obtain the introduction of clauses in the Metropolitan Buildings Bill to ensure ventilation of houses and sewers, and other sanitary arrangements.

After some discussion, in which the opinion expressed was to the effect that the Bill did not go far enough in a sanitary direction, it was resolved that a memorial should be addressed to the Board of Works, and a petition to the House of Commons, calling for the introduction of the clauses alluded to above; Mr. Thos. Webster, Q.C., Dr. Hardwicke, and Dr. Shrimpton being deputed to draw them up. Mr. Liddle, Mr. Clode, Dr. Ryall, Mr. Sneade Brown, and others, besides those named, also took part in the proceedings.

PAINTING ON POTTERY.

THE Council of the Art-Union of London have awarded the premium of 35*l.*, offered for a design for the ornamentation of a tazza, to a work found to be by Mr. R. J. Abraham, of the Art-Training School, South Kensington. In this design the interior of the tazza and the circular foot are each divided into eight compartments, ranged round a circular centre, having backgrounds of red and blue alternately, covered with Renaissance ornament; the bands dividing the panels being black, and enriched with coloured and gilt scroll-work.

The premium of 15*l.* was awarded to a design representing Pandora in the act of opening a vase, from which "she scatters ills in air." This was found to be by Mr. J. Eyre, 102, Adrian-terrace, West Brompton.

Statue of Lord Brougham.—The subject of a memorial in commemoration of the services of the late Lord Brougham has been for some time under the consideration of a committee of the Social Science Association and the Law Amendment Society. At a meeting, over which the Lord Chief Baron Kelly presided, it was agreed to adopt, as the most fitting memorial, the proposal to erect a statue in Westminster Abbey, or some other suitable place, and a sub-committee has been appointed to make the necessary inquiries.

LACE.

AMONG the old arts which have excited of late a revived interest, that of lace is one of the latest in the field of popular favour; but the progress and spread of this particular "taste" has been rapid, and it bids fair to have as many and as enthusiastic devotees as have paid their worship at the shrines of old china or illuminated manuscripts. The notice attracted to some of the old styles of lace has given, to a certain extent, a fresh impulse and energy (though not always in a right direction) to an art which had never fallen through in this country; while the ambition to procure fine specimens of "old point" is becoming a sort of rivalry among fair collectors, almost to the extent of justifying again Dr. Johnson's comparison in regard to a branch of learning,—"Greek, sir, is like lace; every one gets as much of it as he can." The commissioners of the International Exhibition, at least, have, on this principle, got as much as they can, and the result is a large and interesting collection of examples of lace, antique and modern, which serve to illustrate very fully the capabilities of this fascinating branch of decorative art, and the various methods, of greater or less excellence of result, in which it may be manipulated.

Lace has been not inaptly described as "movable embroidery," — ornamental work, which can be removed from one dress to another, and on which, therefore, it is worth while to spend more time, skill, and design than it would do to spend on that which could only be used on one garment, and by one wearer; and it is only on this condition of movability, so to speak, that lace could have become an art product and a valuable property to the extent which it is. It is not our purpose here to speak of the history of lace, or to give a list of the different styles which have succeeded each other, somewhat like the styles of Mediæval architecture; such categorical information can be found elsewhere, and would be scarcely in place here. But the subject is quite worth a few words of criticism, from the artist's and ornamentist's point of view.

The most important varieties of lace, speaking broadly, are those which are classed as *point* lace and *pillow* lace respectively. To the uninitiated the first phrase sometimes occasions a confusion of idea from its being used as if it were the English word "point," instead of the French *point* ("stitch"). The word simply means lace entirely worked with the needle, as distinguished from that which is worked on a pillow by the aid of the fingers and "bobbins," and now in great measure by machinery. The style of design may be, and often is, very similar in these two branches of the art, the difference in that case being mainly in the manner of execution,—a difference which at a little distance can hardly be detected; but in their most typical forms the two methods produce a widely different character in their results. The most distinguishing character of the best point lace, in regard to manner of execution, is in the raised edges to the solid part of the design, which give a relief and substance to it quite distinct from the most characteristic and finest forms of pillow lace, which is marked, on the contrary, by its flat, thin, delicate texture, and absence of relief. The raised edges in the "point" consist of two or more threads placed together and "sewed" round with finer thread, the degree of relief depending of course on the number and thickness of the threads forming the basis; in some of the old Spanish examples to be seen at the International these raised edges are worked up to an extraordinary degree of relief compared with what we are used to in modern specimens. But a much more important æsthetic distinction is that between lace which is worked on a ground (*fond*) of uniform network (or so connected by a ground as to appear as if worked on it), and that in which the main features of the pattern are connected by irregularly-placed lines (*brides*), leaving the interspaces comparatively open. All the finest lace of the best periods belongs to this latter manner; the typical *point* lace having its main lines of construction laid down first, filled in, and then connected in the manner alluded to. And it is scarcely out of place, one may observe, to use something of an architectural phraseology here, for the development of the older schools of lace design reminds the architect forcibly of the growth of Gothic tracery, and follows a very similar sequence. The first lace is what would be now called "embroidery," merely consisting of a pattern perforated in linen or other stuff, and the edges of the perforations worked round with a raised margin; this being manifestly the "plate-tracery" period. Then a somewhat rude attempt at a more free manner of working shows itself in the *reticella* lace, in which the design is formed by threads laid down in groups of two or three, for the main lines of the design, upon which the prinipal features are produced by thickening out with successive layers of thread, using the first lines as a core. This *reticella* may be recognised at once by its formality of general design, accompanied by a lumpy irregular execution in detail, the whole having a considerable resemblance to certain kinds of seaweed. About the middle of the sixteenth century, the introduction at Venice of the point lace system at once gave opportunity for freedom, and finish at the same time, and introduced the most elaborate style of "tracery." But it is obvious that lace design worked on a uniform ground, belongs to a very different type of work to any of these; a point which we notice, the rather because M. C. Blanc, in his article on lace, in a recent number of the *Gazette des Beaux Arts*, seems to ignore this very important distinction, speaks of lace as if it were entirely the art of working on a ground, and is eloquent, with more zeal than knowledge, on the vast importance of the *fond* in determining the character and effect of the whole. The fact is that, though very beautiful and delicate lace of this type is produced in England and at Brussels, it belongs essentially to the tamer and less effective style of the art, and is the mode employed in the flimsy stuff called *Valenciennes*, in which the art is degraded to the mere spotting of net muslin with unmeaning sprigs and flowers.

The question as to the kind of objects which may be represented in lace, and the nature of the design which is suitable to it, is closely connected with the success of the result. There can be no manner of doubt that imitation of any objects which suggest the idea of weight and solidity is completely out of place in a fabric part of the charm of which lies in its transparent lightness of texture and appearance: though this has been done, and there are curious old examples in which figures, ships, animals, vases, &c., play a part in the design with somewhat ludicrous effect, especially when seen distorted by the folds into which the material falls when worn. And it is equally certain that anything like shading or relief is out of place in such a material. Putting aside such things, however, there are two ways of treating lace, for each of which something may be said, and which may be called the natural and the artificial manner. The natural, which has always been much followed in English manfacture, and is also largely illustrated in modern Brussels work, consists in designs generally based on imitations more or less close of sprays of leaves and flowers, worked with no attention to symmetry or design in the usual sense of the word; the object being to avoid any definite arrangement, and rather to produce that kind of light indefinite effect which is held by many makers and critics to be peculiarly proper to lace design. What we call the artificial method is illustrated in a good deal of the old Venetian and Spanish *point*, and consists in the elaboration of patterns having no direct reference to any natural objects, and seeming at first sight to be very irregular, though in fact arranged on a fixed plan and with a recurring symmetry. The artificial method may, however, be carried further than this, and is so especially in the Brazilian and Russian designs, of which latter there are in the International some admirable specimens and photographs lent by the Duchess of Edinburgh. The question whether such symmetrical designs are really suitable for lace depends a great deal more on certain details of execution than on the general design. No doubt a perfectly hard and formal line is out of keeping with the character of the material; but this can always be avoided and its harshness removed by the slight irregularities and points which can be added, sometimes on a very small scale, to the defining or connecting threads of the design: by these little minutiæ all stiffness is avoided, and we obtain that variety and doubtfulness of line which gives the requisite freedom and richness to the general effect, without foregoing the unquestionable advantage of a regularly constructed design. Interesting and beautiful, however, as these geometrical designs from the far East and West are, we shall probably come to the conclusion that the right medium was hit by the makers of the old Italian and Spanish *point*, who enchained the eye by patterns which seemingly irregular, yet really formed on a regular plan, have in them more of the spirit of Saracenic ornament than anything else which has been produced in Europe.

Our remarks may be best illustrated by reference to some of the examples contributed to the International Exhibition, a reference which would be more readily and intelligibly made, however, if the numbering of the specimens were more systematically carried out. The numbers are not in regular sequence, and the same number is found occasionally on two or three cases, and none at all on others. Commencing at the south end of Gallery XV., we find the cases next the door on each side occupied by the valuable and varied collection of specimens (chiefly) of old lace, lent by Mrs. Hailstone, and which form the most interesting item in the Exhibition. The case to the right on entering contains mostly small pieces (borders and "insertions") of old Italian lace, among which some strips of *point*, worked with tape and with braid, are perfect in style, and precisely illustrate the nature and degree of symmetry which, as we observed, can be successfully carried out in lace design. The Brussels cushion lace, in the same case, is a very good specimen, very characteristic in style, and an interesting contrast to the Italian work. The case to the left of the doorway contains some specimens of Italian and of the Greek knotted lace, remarkably geometrical in character, and which assimilates somewhat in style to the bits of Brazil work in the same case. It is a pity that Brazilian lace is not much represented anywhere here, for it is most individual and artistic in character. The Mexican lace, in the same case, also belongs to the same school, and suggests geometrical patterns. Compared with these, the bits of Mechlin and old English point look very frivolous, though interesting as contrasts. Just above this case, against the west wall, is a sampler, with small bits of lace of various patterns arranged in a kind of panel fashion, and evidently originally done as specimens of various kinds of work. This is dated 1618, and is a most beautiful and rare little bit of work, in regard to texture and artistic effect. The lady who exhibits all these specimens evidently knows what is really and artistically valuable in lace design. Going up the west side of the room, we find in case 5,024 (which contains also a wax model of a baby, placed there for no evident reason) a splendid specimen of Spanish point, with a bold and free conventional leaf pattern, with very wide openings and large strong *brides*. In a case next to this is an antique Brussels coverlet, in somewhat the same style of design, but less bold, and with smaller openings. The Spanish is the boldest and grandest type of lace to be found here; and when we look at these broad surfaces of rich, flowing patterns, with their thick, heavy, raised margins, we cannot but connect such work with the character (in the sixteenth and seventeenth centuries) of the people who made and wore it. Only a people of such pride of pedigree, such a love of pomp and splendour, as the old Spanish grandees and their families, could have adequately looked the part when habited in dresses decorated with these heavy and ambitious trimmings. In an adjoining case, higher up, we find the splendid piece of Venetian point lent by Mrs. Morrison, a design of flowing flower-patterns interrupted by spaces of more conventional ornament, symmetrical in design, but not symmetrically placed. Less striking in one sense than the Spanish, this is more refined and more artistic work, the Spanish point being to some extent a corruption of the Venetian style. Some of the Flanders lace, with its large straggling patterns and great openings, in a very bold style, seems again very like a further corruption of the Spanish manner, which fancy may connect fairly enough with the Spanish dominion or interference in the Low Countries. In the case of things lent by Mrs. Bolckow (1,520) is a Venice point priest's robe, notable for its beautiful workmanship, and the contrast between the plain linen in the upper parts of the sleeves and body, and the intricate open work below. The designs in the photographs of Russian lace, in the centre case near here, should be looked at, as most suggestive in regard to their treatment of geometric design, regular and yet not formal. The long centre case next to this, of "real Bruxelles lace," with a portrait of the Queen of Belgium in the middle, contains a great quantity of most

delicate workmanship, with an artistic value in almost inverse ratio; it is the kind of thing which seems only meant to say, for those who wear it, "See how wealthy I am, and what expensive work I can afford to wear." The same reflection is suggested by the lay figure, in the centre case above this, decked with a scarf and flounces of Honiton lace, of which we are told that several hundreds of the best hands were employed for some months in working it. This may be so, but where is the labour's worth? All we see is a profusion of very fragile-looking flowers and sprigs, put together with no meaning, and looking as if at the slightest movement the wearer must run the risk of tearing it somewhere. Behind this we may notice two cases, by Ikle *frères* (of St. Gall, Switzerland), of very nice work of its kind; not lace in the proper sense of the word, but a kind of revival of the "plate-tracery" lace of the earliest period; small geometrical diaper patterns formed by pierced openings worked round: the effect is exceedingly good. The Irish laces in case 5,178 are rather ragged and struggling in effect, and do not present much for admiration. Messrs. Hayward's cases of ancient and modern lace (5,080) show among the latter a very elaborate specimen of *appliqué* work, point and flat mixed, which, however, is very "bride-cakey" in effect: they condemn themselves out of their own mouth by exhibiting the old work along with the new; the old is far less sprinkled in character, more massed in lines, less "pretty" perhaps, but much more artist like; a fringe of "old guipure," in a kind of strap-work, is particularly good.

Returning down the east side of the room, the cases by Desmarés, of Brussels, show a very good style of design in flounces and collars, careful and true in line, and yet quite light and lace-like; leaf forms are very well introduced. The Greek lace, in some small cases in the windows on this side, should be noticed; its knotted manufacture gives a peculiar rich texture to it, and the style of design, geometrical but with no very pronounced leading lines, is peculiar and very pleasing: it is the fashion, we understand, among lace-connoisseurs to depreciate this Greek lace as something coarse and of little value; but in artistic value it must rank high. The Venice point lent by Mrs. Cleland (case 5,039), lower down on the east side, is exceedingly fine, and there are other admirable specimens which we have not time to notice in detail; but must bestow a word on the coverlet once belonging to Louis XIV., which has a case to itself lower down; a splendid specimen of bold and free interminable scroll pattern with large openings. Below this, and the last we shall notice in this room, is a coverlet in something the same style, "bone point," recalling in its heavy border and large manner the Spanish work: a noticeable feature in this is that the centre, though in exactly the same character of flowing design as the outer portion, is a distinct design, and is separated by no border or line from the outer portion, the two designs merely touching on an imaginary straight line: the effect is very good and piquant.

The lace in the smaller room (XIV.) consists chiefly of specimens of borders, some in coloured silk, which are very imbecile in appearance. Some of the modern Italian point borders, in white, are better, and the Maltese better still, and very artistic in design. The Valenciennes borders, of weak-looking sprig designs, look absurd after some of the other kinds of lace we have been describing. The Mechlin and Flemish borders are better; naturalistic, but with good clear design and pleasing lines. One border along the front of case 5,123 is admirable. The borders of Russian point, in one of the cases at the top of the room, are admirable, in the same geometric style we noticed in the other Russian work.

To come from small specimens to large, we must describe the large lace curtains, or whatever they are, hung up along the west wall of Gallery XV., opposite the windows, as mostly simply worthless in point of art: large expanses of "ground" covered with commonplace bunches of flowers. There may be those who like such things, and perhaps their taste ought to be supplied, but they certainly were not worth exhibiting.

There is, however, much for interest and admiration in this collection; and, though we do not sympathise with that extravagant enthusiasm for ornamental art current just now, and for which the appreciation and study of the higher intellectual arts seem, with many persons, to be quite lost sight of, we can give all recognition to the manner in which the art of dress is heightened in beauty and interest by such charming additions and decorations as the old style of lace afforded, and wish the modern were more like it.

THE ANCIENT SYRIAN POTTERY.

THE subject of the ancient pottery found in different parts of Syria is attaining considerable importance. For some time we were alone, in the English press, in deploring the want of sagacity evinced by the contemptuous manner in which these relics were treated in this country. Since we mentioned (p. 282, *ante*), the results of the expedition of the Rev. L. H. Weser, the Rev. S. Neil, the Rev. W. Hall, and Capt. Steevens, R.N., into Moab, two of our contemporaries have published letters on the subject. The *Academy* prints a translation of a long communication from Professor Schlottmann, of Halle, to the *Nord-deutsche Allgemeine Zeitung* of April 12, under the title "Chauvinism in Archæology." The *Athenæum* prints a letter from Pastor Weser himself. Nothing can be more precise than Mr. Weser's statement. He says that he dug himself in Medeba, in a spot to which he was not conducted by Selim, and found twelve pieces of pottery, some plaster with inscriptions, and some broken pieces of figures. Again, "in a cave, near Karn.el-Kebboch, 4 ft. under the firm ground, which did not show the least sign of having been recently disturbed," Mr. Weser says, "I found seven vases, five complete, two broken, all with inscriptions." Evidence of this precise nature can only be met by denying the reliability of the witness, a course which will hardly be ventured on in this instance.

Both Professor Schlottmann and Mr. Weser point out that the assertions as to forgery are only supported by the statement of the boy Hassan Ibn-el-Bitar, which he subsequently contradicted, and asserted that he made it under fear of the *Kurbatch*. At all events, his second story is as good as his first, so that as a witness he is out of court. Thus there is not even verbal testimony to oppose to the material evidence collected by Mr. Weser. Professor Schlottmann mentions a fact which has not, so far as we are aware, been previously known in this country. He says that on some of the urns, now in the Berlin Museum, are *raised* letters, executed in different styles, the characters having undoubtedly been formed by the application of stamps or types, presenting the earliest evidence of that mode of multiplying writing which was subsequently developed into the art of printing. It is needless to comment on the extraordinary value of specimens of this nature.

Mr. Weser takes the same view that we have ourselves expressed as to the unusual amount of archæological knowledge that would have been displayed by a forger of these objects. Professor Schlottmann pays a similar tribute as to the technical skill. He adds that an attempt which, as we were aware has been made, at considerable expense, to copy some of these figures, in Jerusalem, had proved an utter failure.

The question has some interest, even as bearing on the subject of masons' marks. We are not aware of any relics of the Glyptic art (with the possible exception of hieroglyphics), which so defy the attempt of the archæologist to assign dates, from their shape alone, as the Phœnician and early Hebrew letters. From B.C. 850, and B.C. 600, down to A.D. 140, the letter "Shin" occurs in two separate forms,—one resembling an English W, and one a Greek omega. For an equal lapse of time,—that is to say, for a thousand years,—the letter "Ain," or "Omicron," occurs in the shape of an English O, sometimes round, sometimes elliptical, and either upright or laid on its side. Incised characters of a similar kind have been found on the very foundation course of the great fortress wall of the temple of Jerusalem; and not only so, but some letters are actually formed by a red pigment, which so easily brushes off that it seems unquestionable that they are the very quarry marks of the Phœnician builders of King Solomon. Thus the value of the Syrian antiquities, if genuine, is manifold, epigraphic, artistic, religious (as relating to comparative forms of worship), and architectural.

Since the above was in the hands of the printer a fresh letter from M. Ganneau has been published by the *Athenæum*. As it was written in ignorance of the publication of the statements of Pastor Weser, it throws no new light on the subject; being chiefly an effort to show that a certain Selim el Gari is both rogue enough and clever enough to be a forger. This, of course, is beside the mark. But this letter contains a copy of three lines of the Moabite stone; together with a statement which shows with how much reserve *ex parte* statements must be received. M. Ganneau says that this inscription contains "an arbitrary form of the letter Mem," "essentially peculiar to Selim." The letter in question occurs six times in the copy: four times in the form with which squeezes of the Moabite stone have made us familiar; once in a form employed on Hebrew coins, and figured by Mr. Madden in his "History of Jewish Coinage"; and once in what appears to be a variation of this form by a slip of the pencil. As we remarked before, all this has nothing to do with the positive evidence which we now possess on the subject; but it shows the loose way in which statements have been made.

One point has to be borne in mind as to a question that has more than one aspect. Arab evidence, on the showing of all parties, is not only unreliable, but self-contradicting. We must look to facts and material evidence alone. From this point of view it may be remarked,—first, that there are in the Berlin Museum, and in the collection now in Jerusalem, some 1,800 of these curious objects, which are unlike any known to exist elsewhere. Secondly, we have respectable English and German evidence as to the discovery of some of them in unbroken soil. This evidence must be shown to be valueless before any one has a right to pronounce the objects forged. Thirdly, those archæologists who have seen and studied the objects consider them to be genuine antiques; and of the two gentlemen who condemn them as forged, one has not seen a single specimen, and the other has not seen the specimens as to which the palæographical controversy has arisen. These matters of material evidence must be set aside before the question can be decided only by palæographical analogies, which are, more or less, matters of disputed opinion.

ON VAULTING.*

THE influence (all important and all pervading) which the persistent and unwearied attempts of twelfth-century builders to erect over their buildings a substantial and permanent covering of stone, had on the architecture of subsequent times, is now well known to all who have given any attention to the subject. It will probably be now admitted by every one that it was the working out of this problem which gave birth to almost all the distinctive characteristics of Gothic architecture, and the fanciful yet ingeniously supported theory that the "clustered and banded stalks of the lofty pillars, the curling leaves of the capitals and cornices, the interlacing arches of the fretted vaults" of the cathedrals of the Middle Ages, are attempts to reproduce in stone "the awful gloom of the deep forests of the north, the aspiring height of the slender pine, the spreading arms of the giant oak," must now be given up by all except the poetic "Quarterly Reviewer," who has the confidence to maintain that these glorious unities, these perfect wholes, were the result of a number of uneducated workmen each doing that which was right in his own eyes without consultation or superintendence.

It was, I believe, Ware, in his "Tracts on Vaults," who first showed vaulting to be the *final cause* of Gothic architecture, but since his time the question has been more thoroughly worked out, notably by V. le Duc, who in his magnificent Dictionary, in the article "Construction," says:—"The vault being from this time forward" (end of twelfth century) "the generator of all parts of a vaulted building, fixing the position, form, and arrangement of the supporting masses, is the first thing we ought scrupulously to study. By one who thoroughly understands the structure of the Gothic vault and knows the infinite resources its construction presents to view, all the other parts of the masonry can thence be naturally deduced."

Dr. Whewell, too, the late master of Trinity College, Cambridge, in his "Architectural Notes on German Churches," considers "that the adoption of the pointed arch in vaulted roofs arose from the requirements of vaulting, and from the necessity of having arches of equal

* From an Essay by Mr. T. H. Eagles, to which medal was awarded by the Royal Institute of British Architects.

heights with different widths," and further that "from its original situation in the vaulting, this form of arch was gradually diffused into every other part of the building." This view is, indeed, disputed by Professor Willis (whose admirable paper on the vaults of the Middle Ages renders the volume of the Institute Proceedings in which it appears one of the most valuable of the entire series), for in the preface to his "Remarks on Architecture," he observes, "There is a fascinating simplicity about that theory" (of the origin of the pointed arch) "which would derive it from the requirements of vaulting that makes one wish to find it true; but I am sorry to say that, notwithstanding the favourable prepossessions with which I set out, I have been compelled to dissent from this ingenious hypothesis. I have shown that so far from the pointed arch being necessary to enable a parallelogram to be vaulted, it appears that architecture was already in possession of several methods of performing this, which were not even superseded by the introduction of that form, but continued in use to the latest period of the Middle Ages." These methods are, of course, those which prevailed among the Romans, and which are now known as Roman vaulting, but the vaults constructed on these principles (to which I shall refer more particularly directly), are kept up and maintained in equilibrium solely by the inert mass of the supporting piers, the area of which is very large; and which, thanks to the splendid quality of the mortar used, so good as to have become proverbial, are practically homogeneous throughout, the cohesion being perfect. This was, indeed, the principle of Roman buildings. The Romans secured stability by the sheer weight of the resisting portions of their buildings; if, for instance, they feared that an arch would rise at the haunches unless an enormous load was placed there, instead of seeking a more scientific form of arch they simply piled on the required load, and so for the rest.

Now, it was not only possible, but easy, for the Romans,—a powerful people, possessed of abundant means and appliances, with armies of labourers, with any quantity of materials, and, above all, with a great love of show and display, both of their wealth and power,—to build in this manner. Economy was to them no object, but when we come to the twelfth century,—to people just emerging from the barbarism, and ignorance, and consequent poverty of the centuries following the downfall of the Roman power,—the case was altogether different. At first, indeed, they seem to have attempted to imitate the structures which the barbarian incursions had spared (for I should notice that it is to the Continent we must go for the earliest Mediæval examples), but they speedily found the impossibility of continuing this method. With them the most rigid economy had to be practised, the utmost possible effect had to be produced with the materials used, nothing could be laid to waste; and therefore instead of relying on mass and mere weight, the thinking faculty had to be exercised, and so attempts which were gradually, though doubtless only after repeated trials and occasional failures, crowned with success, were made to balance opposing forces, to diminish thrusts and pressures, and to make the direction of these as vertical as possible, thereby simultaneously enabling the area of the piers to be safely reduced.

These circumstances, I think, acting on the ever-present desire in the twelfth century for stone vaults, led directly to the results produced, and furnish a reason why the previously existing Roman solution of the problem could not be accepted, and an answer to Professor Willis's objection to the theory in question. The question why stone vaults were so much sought after in spite of all the difficulties attending their construction, and why the builders of the day were not satisfied with wooden roofs, is a difficult one to answer. Probably the danger which there always was, in those unsettled and turbulent times, of the malicious or accidental destruction of any important building by fire, had something to do with the matter. Certain it is that such an event was by no means uncommon, and the use of the more durable and permanent material was thus, perhaps, in a manner forced upon the designers; for there can be no doubt whatever that a brick or stone shell over a building, whether the same be the actual roof or not, renders it to a very great extent fireproof. Even where (as is almost universally the case) the vault is only a sort of inside ceiling, and is protected from the weather by a timber-framed roof above, a careless plumber can do very much less damage than where in place of the vault there is only a wooden or plaster ceiling, for by cutting off air from below the fire is checked and more easily mastered, as was strikingly exemplified at Canterbury at the time of the fire there in November, 1872, for though nearly two hours elapsed between the breaking out of the fire and any water being brought to bear on it, still it was confined to the eastern limb of the cathedral (where it commenced), and since the burnt and charred timbers fell in on the upper surface of the vault, and so were prevented from dropping into the choir below, scarcely any damage was done to the interior of the building. It is not too much to say, then, that the existence to-day of this precious national monument is mainly due to its "stone ceiling," a very good reason for recommending similar construction where a durable building is required. On the other hand, York Minster, which is covered with a wooden ceiling of sham groining, has twice within the present century suffered most severely from the ravages of fire. In 1829, the roof, the whole of the richly-carved tabernacle work of the stalls, and, in fact, all the woodwork of the choir were utterly destroyed, and it would be easy to multiply instances.

Every one knows, however, that in England it was by no means the universal custom to ceil a building with stone; but if we compare the circumstances of our own country and those of our Continental neighbours, I think we may find reason for the greater prevalence of vaults there than at home, and which is, of course, another cause why the difficulties of vault construction were so steadily struggled against, and the system so pertinaciously adhered to. Our noble open-timbered roofs are legacies of which we may well be proud, which have no rivals abroad, and which we owe in no small degree to the magnificent forests of oak-trees for which England was formerly famous. The Romans seem to have drawn heavily on the forests of Gaul, after those of Italy were exhausted, for timber for their immense naval and engineering works; and hence, even as early as the middle of the twelfth century, the provinces where the first glimmerings of returning civilisation had appeared, and where consequently the architectural art was most advanced, appear to have been almost entirely cleared, and, as a natural consequence, wood became a comparatively scarce and proportionately valuable material.

Whether this be the explanation or no, we have abundant evidence to show that vaulting had advanced a considerable way towards perfection on the Continent at a time when it was very little, if at all, practised in England; that it was then imported, as it were, complete as it stood; and that it throve so well after being transplanted as soon to surpass its parent stock both in beauty of design and careful execution. No Continental examples, indeed, can compare with the richness and skill displayed in some of our late ones, though it may be doubted, after all, whether these last may not be adduced as instances of the "vaulting ambition which o'erleaps itself."

I do not propose to enter into any discussion as to the antiquity or invention of the arch. Many of the so-called examples of its early use would be very much to the point if it were not for the unfortunate circumstance that they in no way exhibit its principle, but consist only of a series of corbelled-out courses, with horizontal beds, a method impossible of application to the covering in of extended areas. It is enough to go back to the days when Rome became a mighty nation, and was enabled to indulge in those tastes to which I have already referred. The occasion of the rebuilding of the city, after the burning by Nero, seems to have been taken advantage of for covering in many buildings with vaults, which, until then, had only wooden roofs, and none of the great vaults with which we are acquainted seem to be of earlier date than this.

Until comparatively recently a totally erroneous notion appears to have prevailed, at all events in this country, as to the Roman method of construction. The general idea was, I think, that their vaults were either of solid masonry, accurately cut and worked, or were composed entirely of *béton* heaped over centering, heavy and substantial enough to resist the enormous weight necessarily lying on it, until the closing in at the crown, and "setting" of the concrete rendered the mass self-supporting. Recent investigations by M. Viollet-le-Duc and M. Choisy have, however, thrown fresh light on the subject, and shown that the real mode of procedure was very different. M. Viollet-le-Duc tells us that we find with difficulty even one or two examples of groined vaults of wrought masonry in ancient Rome. From motives of economy they avoided the interpenetrations, groin-ribs, wrought pendentives, &c., of modern "architects"; and M. Choisy ("Encyclopédie de l'Architecture") says, "As to *béton*, the ancients certainly knew the use of it, since Vitruvius describes it as being proper for sea-walls or other marine works; but from an examination of ruined buildings remaining, it is evident that its use was by no means so general as is usually supposed." Both these gentlemen have proved that the active principle in Roman vaulting is economy in the wooden centering used during the construction, but of no permanent use in the building. This centering is always a most important item in the cost of a vault; and though the Romans lavished immense sums on the *decoration* of their buildings, their love of display would lead them to view with disfavour any system requiring that a considerable portion of the cost of a building should be as it were hidden from view, sunk in mere temporary scaffoldings, or wasted on complicated stone cutting unnecessary for producing the effect required. Instead, then, of solid masonry or *béton*, we find in most cases that their vaults really consist of ribs of brickwork thrown across, at intervals, at right angles to axis of vault (exactly similar to the transverse ribs or arches of the subsequent Gothic ones); that these are connected at intervals by courses of the well-known large flat Roman bricks or tiles, the edges being horizontal, but the sides lying in planes passing through the axis of vault; and that the spaces between the various members of this skeleton framework (a series of squares or rectangles) are then filled in with light concrete, the weight of which, even before it finally solidifies, is not thrown entirely on the wooden centering, but is carried to a very great extent by the skeleton of framework of ribs. The economy which this system introduces into the centering is obvious; instead of a solid platform being required, along the whole length of which the weight and pressure would be everywhere equal, necessitating equal strength everywhere, and consequently rigidly framed trusses in close succession, covered with enormously thick planking, all that was necessary was a framed truss under each of the transverse ribs, and comparatively thin planking for the immediate fillings in, which were of relatively light construction. Viollet-le-Duc, in a series of instructive sketches, exhibits this construction; and shows how here and there, as the transverse arches were turned, pairs of bricks were made to project sideways beyond the general outline of the rib, between which a plank might be dropped edgeways for the temporary support of the connecting horizontal courses. It would further appear that in order to still further lighten the necessary centering, the first step in the construction of the vault was frequently the laying of a thin shell, as it were, of tiles flat over its entire area, which in fact, became a permanent centre on which the vault could be completed. This shell, of course, would not be self-supporting in the sense of remaining stable if its centering were struck, yet it would certainly take off from this last a very great deal of the subsequent superincumbent weight, more especially of that of the upper half of the vault, since its stability would be immensely increased by the filling in over its haunches. The importance of this can scarcely be over-rated, since it is precisely this portion which bears most heavily on the centering, *i.e.*, until the keystones are driven, necessitating, of course, large scantling for the timbers used, and very judicious trussing in the supporting frames. It is hardly too much to say that for a vault constructed as above described, the centering need hardly be stronger than is necessary for the support of the workmen employed—excepting, of course, as regards the trussed centres for the transverse arches, and the risk of deformation of the centering and all its attendant evils is reduced to a minimum, or rendered of very slight importance.

There are one or two examples of Roman vaulting consisting of a series of parallel transverse arches within a short distance of each other, on the backs of which thin slabs of stone are laid, connecting them together in pairs and completing the covering. This system too obviously favoured economy in the centering required, as continuous planking might be dispensed with altogether; but it was quite ex-

ceptional, the transverse arches being generally hidden in the thickness of vault. There is obviously in many points a striking analogy between it and the rib and panel vaults of a subsequent period.

The foregoing remarks refer strictly only to what is known as a continuous barrel vault. This is what the majority of Roman vaults were; semicircular, of course, in section; in fact, in appearance exactly like the upper half of most of our railway tunnels. Interpenetrations seem to have been avoided, at all events, until the later days of the Empire, and if from the necessities of planning, an art in which the Romans seem to have been great adepts, a vault had to abut end on to the direction of another, they frequently got over the difficulty by making one (the smaller of the two) at a lower level than the other, so that the springing of the larger one would be above the crown of the other—the minor vault would finish as a semi-arch in the vertical abutment wall of the superior. We know, however, from existing remains, that the Romans did not entirely shirk interpenetrations of curved surfaces, and this really brings us to the difficulty of the subject—*groined vaults*. If we have to cover in an exact square, there is obviously no reason why we should choose one pair of sides for direction of axis of our barrel vault, than the other; at least, if we are not hampered by any consideration of convenience in securing the necessary abutment; in fact, we might suppose a complete barrel vault to be turned across in each direction, and, supposing that the two could co-exist, the space below would obviously have a *double* covering. Now, if we imagine the part of each vault which is *above* the upper surface of the other cut away, we should have remaining a sort of square dome, which would form a *single* covering over the entire space; while if we cut away the part of each vault which is *covered* by any part of the other, *i.e.*, which is *below* its under-surface, we should have a roof with salient edges or groins over the diagonals of the compartment, and which no longer abuts continuously along its sides, but the entire thrust of which is tranferred to four other angles, and which might be carried on piers there placed. Both these methods were used. The first is known by French architects as a vault "*en arc de cloître*," the second is the ordinary "*groined Roman vault*."

Thus far all is plain sailing; the compartment to be vaulted being square, the diameters of the arches on each pair of sides (the generators of the respective vaulting surfaces) are equal to each other, the crowns in the centre of the compartment and the groins are plain curves. Each being only an oblique section of a right circular cylinder, its outline would be a semi-ellipse, and by constructing wooden centres to this outline arches could be thrown across from angle to angle of the space to be vaulted, and the entire vault could be completed exactly as before described; the only requisite to be observed being that the centre should be so much larger than the actual finished groin as the breadth of the tiles used required, in order that their angles should not project beyond the finished vaulting surface.

As soon, however, as we attempt to cover in a parallelogram with a groined vault difficulties beset us, which are the greater the more the parallelogram departs from a square. The sides being unequal, if we use barrel vaults, semicircular in section for the generating surfaces of our groined roof, we cannot at the same time have the springing line and crown of the smaller level respectively with the springing line and crown of the larger; but if we make both spring at the same level, the crown of the one is below the crown of the other, while if we make their crowns level the springing line of the smaller is more or less above that of the larger. In both these cases the groins are no longer plain curves. Notwithstanding these difficulties, vaults were constructed with these groins of double curvature, notably over the great hall in the baths of Diocletian, now the church of S. M. degli Angeli, but the compartments do not differ greatly from a square on plan, the sides as 4 to 5, the span 67 ft.; yet, even here the effect of the twist in the groin is, by universal testimony, exceedingly disagreeable to the eye, and causes a painful sense of insecurity. In the great hall of the baths of Caracalla the mere springing of the vault remains, yet there are clear indications of the twist; the proportions of the sides of the compartments here are as 9 to 11, or a trifle more nearly square than the preceding. In consequence of these difficulties and objections, Professor Willis, in his "Remarks on the Architecture of the Middle Ages," observes, "It is no wonder that a new expedient was soon found to supersede it" (the twisting groin), "which appears to be the domical or inclined form of the vaulting cells." (The vaulting surfaces filled in between the supporting arches or a skeleton framework.) "The whole difficulty of vaulting a parallelogram with quadripartite vaulting, resides in the assumed necessity of preserving the apex of the vaulting cells horizontal, and making their surfaces cylindrical throughout. If we free ourselves from these conditions it is easy to show that we can, not only vault any parallelogram or trapezium, but that we may make both arches and groin of any figure we choose."*

* To be continued.

WORKMEN'S LIBRARIES: MESSRS. BROADWOOD & SONS'.

"The place where we are to get knowledge, even theoretic knowledge, is the books themselves. It depends on what we read, after all manner of professors have done their best for us. The true University of these days is a collection of books."—THOMAS CARLYLE.

IF the importance of self-culture, the beneficent power of books, and the value to individuals and the community of well-furnished libraries, easy of access to all classes, have been frequently or fully discussed at public meetings of working men, they must have been very imperfectly reported; in any case we cannot think that such subjects have received the degree of attention from working men or their professed representatives that their intrinsic importance demands.

The evidence given before Mr. Ewart's Select Committee of the House of Commons in 1849 "on the best means of extending the establishment of libraries, freely open to the public, especially in large towns in Great Britain and Ireland," was as startling as it was humiliating. From that evidence it appeared France had 107 public libraries; Austria, 48; the Prussian States, 44; Bavaria, 17; Belgium, 14; Tuscany, 9; Saxony, 6; Denmark, 5; and England, 1. As regards open public libraries in the principal cities of Europe, it appeared that there were 7 in Paris; 6 in Florence; 4 in Dresden; 3 in Copenhagen; 2 each in Brussels, Berlin, Vienna, Milan, and Munich; and in London not one!

As regards England, the state of affairs is not now so bad as it was then, noble results having accrued in many English towns from Mr. Ewart's Public Libraries and Museums Act of 1850, and the Acts passed subsequently to extend and amend the same. Very little progress, however, has been made during the quarter of a century that has elapsed since Mr. Ewart's committee took evidence to remove the stigma that attaches to London, sometimes boasted of as the centre of enlightenment and civilisation, the capital of the world. It is true that the splendid collection of books in the British Museum is not difficult of access, in so far as admission is concerned; and the excellent new library connected with the corporation of the city of London, is even more easily accessible; but neither of these is in the category of absolutely free public libraries. The small but useful library and newsroom for St. Margaret's and St. John's, Westminster (far from the richest district in London), which was established in 1856, continues to be to this day the only public free library in London under the operation of the Acts. An attempt was made, a few years since, we believe, to establish a free library in Marylebone; but the attempt failed, through false thrift probably, and because interference with ignorance means expense.

It is quite true that it is much more difficult to arouse the inhabitants of even the districts into which the "province of houses" may be divided, or to unite them with a view to practical action for the promotion of local objects, other, perhaps, than such as excite direct personal interest,—say repeal of the income-tax,—than it is in smaller communities, to whom appeal is more easily made, and by whom appeal is more readily responded to; among whom there is an *esprit de corps* that cannot be generated in London. Hence, probably, the readiness with which the Free Libraries Acts have been adopted in Manchester, Liverpool, Birmingham, Salford, Bolton, Oxford, Cambridge, Birkenhead, Leamington, Norwich, Cardiff, and numerous other towns, and the enlightenment, vigour, and success with which the libraries established in such towns are conducted. Making every allowance for the difficulty of "moving London," however, it must be admitted to be a contrast to the discredit of the metropolis that Manchester, with about a tenth part of its population, has six affiliated public free libraries, and puts into the hands of readers about 2,500 volumes per day; whereas the one free public library of which London can boast (?) issues about 200 volumes per day.

In reading and intellectual exercise, as in some other things, it would seem that the appetite "grows with what it feeds upon." It is somewhat curious that ten years before the public library for St. Margaret's and St. John's was established, the nucleus of a very excellent workmen's library was formed, in connexion with the extensive works of Messrs. Broadwood & Sons, the eminent pianoforte manufacturers, that are situated in the same district. We believe that a number of the subscribers to the library at the manufactory in Horseferry-road are also among the most regular readers at the Free Public Library.

The annual meeting of the members of the library at Messrs. Broadwood & Sons' has just been held, and affords occasion for a brief statement as to its origin, history, character, and working. Intrinsically it is well worth notice, but is so especially as an example practical, and well worthy of imitation. It is true that there are comparatively few manufactories that possess the advantages for co-operation in such an object as Messrs. Broadwood's in the number of workmen brought together,—about 750,—and of as high a class, generally, in character and culture; but there are, doubtless, many manufactories, and works of various kinds, in and near London, and elsewhere, where the formation of a workmen's library would be perfectly practicable, and would be followed with the best results.

The library was established in 1847, its nucleus being 80 volumes granted by a philanthropic society, that had for its principal objects the introduction of libraries into manufactories, and the social and moral improvement of workmen. In granting books the Society imposed only one condition—that no works of a sectarian or demoralising tendency should be afterwards added to the books presented. Lord Brougham and the Earls of Shaftesbury and Roden were active members of the Society referred to. The library took root vigorously, and numbers of standard works were added continuously till 1856, when a disastrous fire occurred at the works, and the whole of the books were destroyed. To resuscitate the library during the rebuilding of the works was impracticable, and any proposal to have done so would have been quite out of joint. In 1859, however, when the new works were in full operation, it was felt that the time had arrived to re-establish the library, which was done; Mr. F. Rose, a member of the firm, rendering valuable counsel and assistance, personally. Messrs. Broadwood & Sons also manifested the most lively and generous interest in the effort, and, amongst other advantages conferred upon the members, have fitted up a room for the care of the books, have provided the members with a reading-room, supply them with fire and gas, and every other convenience needed for the comfort of the members.

From the balance-sheet for the year we notice that each shop or department throughout the works has its collector of library subscriptions (fourpence per month), that are handed over to Mr. Trail, the treasurer, a valuable and zealous friend of the library. The annual income from subscriptions, and a few other sources, is, in a round sum, about 55*l*. The working expenses are about 10*l*. 10*s*. The balance is mainly devoted to the purchase of additional books, and to binding and repairs. The additions are made with due caution and sound judgment; only such books as are either known to some of the committee, or as have made their reputation, being admitted. The library contains upwards of 3,800 volumes, and the weekly issue is about 100 volumes. There are about 300 subscribing members. The library is managed entirely by a committee of workmen, elected annually by the subscribers, Mr. Jacob Freeman discharging the duties of librarian with most satisfactory efficiency. The firm have a power of veto on the books admitted, and other questions of management,—a power they have never occasion to exercise. The rules applicable to detention or injury of books, return of books for stock-taking, &c., are sufficiently stringent, but perfectly reasonable. During the last year a new edition of 750 copies of the catalogue has been printed. The

compiler has very wisely refrained from any attempt at classification of subjects, excepting only that works of fiction are given in one group, alphabetically arranged according to their titles, but with the article properly transposed, as, for instance, "Gipsy, The. *James.*" We would suggest, with due deference, that it would have been a better "finding" catalogue if the transposition had been uniform throughout. "Traditions of Edinburgh, The. *Robert Chambers,*" and "Testimony of the Rocks, The. *Hugh Miller,*" are fair entries, not likely to give much trouble to the searcher; but the same can scarcely be said of "The Town, &c. *Leigh Hunt*"; "The Works of Elihu Burritt"; or "The Ocean. *P. H. Gosse.*" An index of authors' names would have been a valuable addition, but would have added to the bulk and cost of the catalogue, which, we have little doubt, serves its purpose very well.

In glancing over the catalogue we notice that the works throughout are of such an unexceptionable character as would command the sanction of the most severe censor. Many of them are of high character and considerable money value, and certainly highly creditable to the successive committees that have brought them together. They belong in fair proportions to the classes of history, biography, science, arts, manufactures, voyages, travels, adventures, and poetry. An interesting and rather unusual feature in the catalogue consists of a very good collection of pieces of music, vocal and instrumental, with a goodly quantity of musical literature. It may here be mentioned that there is a prosperous wind-instrument band of about twenty members connected with Messrs. Broadwood & Sons' works. They also had their annual meeting on the same evening, when a very satisfactory balance-sheet was presented. Reverting to the self-supporting, self-managed Library Institute at Messrs. Broadwood & Sons', we would respectfully suggest to large employers of labour and their workpeople that they might do worse than "go and do likewise."

THE ENLARGEMENT OF THE SOUTH WESTERN COMPANY'S STATION AT CLAPHAM JUNCTION.

A SHORT time ago we noticed in the *Builder* the extension and reconstruction of the London and Brighton Company's Station at Clapham Junction, stating at the same time that the London and South Western Company was also about to rebuild and materially enlarge their portion of the station. The works in connexion with this enlargement were commenced about a fortnight ago, and are now actively progressing, a large number of artizans being employed on the undertaking. The enlargement applies to both the main line and local traffic carried on at the station, the existing accommodation in both cases being in every sense inadequate and inconvenient. The extensions are being carried out at the north-west side of the station, which is set apart for the Windsor and Richmond, and Ludgate and Kensington traffic, and also, on a scale of considerable magnitude, at that portion which is exclusively connected with the traffic of the main line. Hitherto the Windsor traffic, as well as that in the direction of Kensington and Ludgate, arrives at and departs from the same lines of rails, which causes much overcrowding and inconvenience. In order to obviate this the station is here being widened westward to the extent of 64 ft., admitting of the laying down of an additional double line of rails, the construction of new platforms, and the erection of new station buildings approached from the Battersea side. The building will contain booking-offices, waiting-rooms, refreshment-rooms, and other apartments for the special use of the Windsor, West-end, and Ludgate traffic, altogether distinct from that belonging to the main line. The lines of rails for the Kensington, West-end, and Ludgate traffic will be on the extreme west side of the station, whilst those for the Windsor traffic will be between the last-named lines and the main line, there being thus three sets of double lines of rails, in addition to platforms and sidings, within that portion of the Clapham Junction Station area belonging to the London and South Western Company alone, besides those immediately belonging to the London and Brighton Company.

The extended accommodation for the main-line traffic is being carried forward simultaneously with the works already described. The wide carriage approach to the station, between the London and Brighton and South-Western portions of the station area, has been absorbed into the station itself, and the line is also intended to be diverted westward, in order to give increased accommodation at the central platforms used jointly by the two companies. On the additional space which has thus been added to the station area, large new station buildings are now in course of erection. The length of the buildings, which have two frontages architecturally uniform, is 214 ft. The central portion of the elevation is 64 ft. in length, and contains one story, carried to a height of 25 ft., whilst at each end the building contains two stories, 40 ft. high, and surmounted by a handsome pavilion-roof covered with green and blue slates. The style of architecture partakes of the Gothic. The main face of the elevation is of white Suffolk and stock brick, with patent red brick window-heads and dressings. The interior of the central portion of the elevation has a circular timber roof, open throughout, which gives it a light and striking appearance. The building contains a complete set of offices and other apartments for conducting the business of the station. These include spacious new booking-offices, 40 ft. by 25 ft.; gentlemen's waiting-room, 25 ft. by 22 ft.; ladies' waiting-room, 22 ft. square, with lavatories and retiring-rooms; also a refreshment room, 40 ft. by 22 ft., with kitchens attached; in addition to station-master's office, inspector's office, telegraphic office, ticket collector's office, and other requirements appertaining to a first-class station. The south-east frontage of the new station faces the line of railway, alongside which a covered platform, 20 ft. in width, runs the full length of the station buildings. On the north-west side of the station there will be a wide new carriage and footway approach, the footway being covered over with a light roof, supported by ornamental iron columns and spandrels. The whole of the works have been designed by Mr. Jacomb, the company's engineer; and the contractors for the extensions and buildings on the main-line portion of the station are Messrs. Jackson & Shaw, the company themselves executing the works in progress at the Windsor and West-end section, Mr. Bishop being the clerk of works in charge of the whole.

THE NEW CLYDESDALE BANK IN GLASGOW.

THE new building erected for the Clydesdale Banking Company, in St. Vincent-place, Glasgow, even in its present partially completed state, forms one of the most notable architectural features of the City. Italian in style, the building stretches along the street for 135 ft., and the frontage rises to a height of three stories from the ground floor. The eastern portion of the edifice, which has a frontage of 38 ft., will be occupied by the bank, and the remainder is intended for offices or warehouses. The bank entrance is in the centre of the façade of the eastern part of the building. It is flanked on either side by granite columns, and is surmounted by a piece of facial sculpture, emblematical of a river god. Above this, the arms of the city are worked out in stone, and figures representing Industry and Commerce are placed on either side the grand staircase window on the first floor. Over this again two beautiful shields have been cut out with the arms of the trades' and merchants' houses of the city, and on the summit of the building there is a semi-circular shield in the centre of a beautiful floral device. A number of small circular ornamental shields have also been placed between each window on the ground-floor, and these contain the arms of the various towns in which chief offices of the Banking Company are situate. Along the upper stories there is in classic design a group of Ionic and Corinthian pillars, and at the west corner a tower is erected, which is crowned with a balustrade. The works in the interior are also progressing.

The entrance will have a portico, which will rise to a height of two stories, and will slightly project over the area. The hall or vestibule, from which will rise the grand staircase leading to the upper floors in the front part of the building, will be 26 ft. square. The manager's rooms, waiting-rooms, &c., will be on the left, and the assistant-manager's and other apartments on the right, of the portico. The telling-room will occupy a space of 60 ft. by 56 ft., between the columns of an arcade, or a series of stalls. In these latter the chief clerks and heads of departments are to be accommodated. If the space to be taken up by these stalls, which will be open all round, is added to the telling-room, the department will have a width of 84 ft., and a length of 87 ft. The apartments fronting St. George's-lane will include rooms for the inspector and his clerks, and there will also be two staircases leading to the upper floors. The board-room, ante-room, committee-rooms, &c., will be on the first floor, facing St. Vincent-place. Over the arcade or stalls there will be on the right lavatories for the directors, managers, &c.; and on the left, the proprietors' gallery, which will be 60 ft. long and 16 ft. wide. The stationery and note-printing rooms will be towards St. George's-lane. The whole of the first flat is to have double flooring. The money and cheque safes will be upon the ground-floor, and the entire space in the basement flat will be divided into a book-safe, or stone plate-rooms, note-burning room, and coal-cellars. The main ceiling will be of semicircular shape, and will be surmounted by a large dome, filled in with painted glass. The height of the ceiling in the dome will be 10 ft.; in the street floor, 18 ft.; in the first floor, 18 ft.; in the second, 13 ft.; in the third, 10 ft.; in the telling-room, 40 ft.; and to the apex of the roof from the last-mentioned place, 54 ft.

With a view to possible future extension, the floors of the bank and warehouse buildings correspond throughout in regard to level. All the floors will be made fireproof, and the surface of the entrance-hall and the public space in the telling-room will be laid with encaustic tiles, whilst the other parts of the bank flooring will be of teak. Although the whole of the apartments will have fireplaces, the general means of heating the premises will be by the hot-water process.

It is expected the new bank will be ready for occupation in the course of the summer.

ELY CATHEDRAL RESTORATIONS.

VERY extensive works are still in progress at Ely Cathedral, in connexion with the completion of the lantern and octagon; and it is almost the last work that is required to make this grand structure complete. The present work has long been deferred on account of its costliness, and because other parts of the building needed previous attention. At the St. Etheldreda Festival, in October last, commemorating the anniversary of this establishment, much notice was taken of the lamentable condition of the lantern, and the groined roof of the octagon. The Duke of Bedford made a donation of 1,000*l.* towards its restoration, and Mr. Dunn Gardner also gave 200*l.* With this, as a foundation, the Dean and Chapter have opened a new restoration fund, and have resolved at once to commence the present work. Their architect, Sir Gilbert Scott, having approved of the scheme, the work of repair has been consigned to their surveyor and architect, Mr. R. R. Rowe, C.E., of Cambridge, who has completed the gigantic scaffolding necessary for the purpose. This important work of ornamentation has been placed in the hands of Mr. T. Gambier Parry. In this work, as the local *Chronicle* reminds us, there is next to nothing of ancient painting left by which to be guided, except a few panels of the groining, covered with a kind of sham Gothic tracery, in green and buff, more like huge rabbit-wire than anything else, much on the principle of the roof of the Cathedral at Milan, and of which all who have to do with it are rightly ashamed. Of any work of Mediæval painting in the lantern there is absolutely nothing. It is therefore inevitable to make the scheme of its treatment, both in the octagon and lantern, new throughout. The design of Mr. Parry is, we understand, to draw the four roofs, which concentrate upon the octagon and lantern, altogether by a work, in their midst, which will unite them thoroughly, and thus withdraw attention from their great differences. There will be very rich colouring upwards in the ornamental ceilings, and mellow colouring below, where it will melt away almost imperceptibly among the uncoloured stone-work. The scheme of the figures, of which there will be many, is founded on the grand idea of the 105th Psalm: "Praise God in His Holiness. Praise Him in the Firmament of His power." There are yet a few things more to be done within the octagon and lantern, which are necessary to a proper completion of the whole. The thin and cold glass which now fills the windows of the lantern was doubtless the best of its kind when put in, but it will be doubly wretched by the side of the internal colouring which is now

being executed. It needs to be replaced by good rich glass. Another very necessary work is the pavement of the octagon. Mr. Parry's two principal assistants, as decorative painters, are Mr. Henry Davies and Mr. Alfred Clay, who worked excellently for many years in completing the nave of the cathedral, under the late Mr. Le Strange and Mr. Parry.

THE INSTITUTION OF SURVEYORS.

METROPOLITAN BUILDINGS BILL.

THE annual meeting of the members of the Institution of Surveyors was held on Monday, the 1st inst., at their Rooms, Great George-street, Westminster, to receive the report of the Council and to elect the officers.

In the absence of the president (Mr. E. Norton Clifton), the chair was taken by Mr. Hall, who, in opening the proceedings, stated that unfortunately the president had been confined to his bed for several days from the effects of a fall. During his term of office he had rendered valuable service to the Institution, and much of the success with which they had met was due to his individual exertions. In conclusion, he (the chairman) informed the meeting of the death of Mr. Bidwell, a member of the Council.

Mr. Penfold (hon. sec.) then read the sixth annual report of the Council, which showed that the past year had been one of substantial progress, and they had cause to congratulate the members on the prospects of future prosperity. The old rooms of the Institution having been found to be insufficient for the accommodation of the members, the Council, after mature consideration, had during the past year decided to make an outlay for the enlargement of their premises to such an extent as to avoid any future outlay for some years to come. These improvements had been carried out very satisfactorily; and the step taken was considered the most economical that could have been adopted. The addition to the number of members during the period reviewed by the report was far in excess of that of any previous year, and to the list of honorary members had been now added the Duke of Bedford. With regard to the financial condition of the Institution, this was fortunately in a satisfactory state. To the Duke of Bedford the council were indebted for the donation to the library of a series of most rare and valuable works of a topographical character. As regarded the entrance from the street to the Institution, it had been determined by the council to effect some reform in this direction, and consequently the entrance would be widened, and a porch erected. The ordinary meetings of the Society had been better attended than heretofore; but few papers were read, this being due to the fact that, being of a more interesting description, they necessitated protracted and adjourned discussions.

Votes of thanks were passed respectively to the auditors, the president, the vice-president, and to the various members of the Council, &c., for the satisfactory performance of their duties during the past year.

Previously to the declaration of the ballot, which was being taken for the election of officers,

Mr. Garrard expressed a wish to call the attention of the members to the Metropolitan Buildings Management Act, which was now before Parliament, he stating that the Bill sought to put almost unlimited powers into the hands of the Metropolitan Board of Works, although it was true that much of the powers only applied to detail; but the Bill, if carrried, would, he considered, affect very injuriously those gentlemen who had the management of estates in and about London. With respect to the laying out of roads, it was proposed to take arbitrary powers by the Board, so that if they chose to direct those who had to lay out the roads to increase their width and alter their direction, &c., it would reduce the value in many cases at least one-third. He contended that, considering all things it would be a very serious thing if the Bill became law; and he would like to see the Institution co-operate with others in opposing the measure. Already there was great opposition, so that the Bill might possibly be thrown out. It would be well if they could keep their powers to make the roads as they did at present. Among other powers, the Board reserved to itself the making of bye-laws uncontrolled; but there certainly should be some kind of supervision by the Home Secretary, or some other person in this respect. The Institute of British Architects were taking up the matter, as were also the district surveyors and the builders; and he did not think that the Institution of Surveyors should let the matter pass without showing their opposition to it; and he would suggest that some members of the Council should form a committee to consider the best steps to be taken in the matter.

Mr. Driver fully concurred as to the Bill giving the Metropolitan Board of Works most arbitrary powers; and thought that if the measure became law, so-called freehold property would no longer be freehold.

Mr. Clutton considered that if the matter were referred to the Council of the Institution, it was possible that when the Bill reached the House of Lords some good might be done, by way of suggestion, if the President of the Institution could be called up for examination.

Mr. Garrard then proposed that the question should be referred for consideration to the Council.

Mr. Stewart seconded the motion, which was unanimously carried.

Mr. Driver was of opinion that the Rating Bill, too, was an important measure, as it purposed to deal with woods, underwoods, shooting, and mines, and touched the question of severance of shooting.

It was then understood that this question also should come under the consideration of the Council.

It was afterwards announced that Mr. Thomas Huskinson had been elected president; the vice-presidents being Messrs. J. Mathews, J. Oakley, E. James Smith, and W. Sturge.

THE WALKER ART GALLERY, LIVERPOOL.

WE illustrate in our present number the new Art Gallery for Liverpool, which is about to be erected upon the ground adjoining the Free Public Library, at a cost of 20,000*l.*, the gift of the present mayor of Liverpool, Mr. Alderman Walker.

The order of the building,—which will be in accordance with plans prepared by Mr. Cornelius Sherlock, of James-street, and Mr. H. H. Vale, of Central-chambers, South Castle-street,—is Corinthian. In the centre of the front, facing William Brown-street, there is a portico, consisting of four fluted columns with carved capitals, approached by a flight of twelve steps. Above the portico are a pediment and attic, crowned by a figure representing the Arts. On either side of the portico is a group of statuary, representing, we believe, Science and Literature; and above are panels carved in bas relief. To the right and left the façade extends 70 ft., making, with the central portion, a frontage of 180 ft. to William Brown-street. The wings on the right and left of the portico consist of four large windows on the ground floor, with a continuous frieze and cornice above, the frieze over the windows being ornamented with a fret enrichment. Above these openings are long panels, running almost the entire length of the wings, and containing bas reliefs representing subjects having reference to the purposes of the building. The whole of this portion of the façade is surmounted by modillion cornice and open balustrade, the total height being about 50 ft. The extreme ends of the front of the building are finished with coupled pilasters, having Corinthian capitals and bases, standing upon a moulded plinth, continued up to the portico upon each side.

The main doorway is recessed beneath the central portico, and opens into a vestibule lighted by each side of the doorway, the flooring formed of encaustic tiles. Beyond the vestibule is a spacious hall with panelled ceiling, at the end of which, facing the grand entrance, is the staircase leading to the picture-galleries. The whole of the ground floor of the building is appropriated to sculpture and museum purposes, lighted by windows at the sides, and consists of two large galleries, 70 ft. long by 30 ft. wide, and two galleries, 46 ft. long by 35 ft. wide. Upon this floor retiring-rooms and other suitable apartments will be provided.

The picture-gallery proper occupies the upper portion of the building, and is approached by the staircase, which leads to a large hall lighted by windows in the roof. Out of this hall open two miniature-rooms and six galleries, of the same dimensions as the sculpture-galleries beneath, but more lofty, and having their light entirely from above. The plans have been prepared with a view to further extension; but, inasmuch as the eight rooms in the upper floor will have upwards of 1,000 lineal feet of hanging space for pictures, any enlargement will perhaps not be necessary for some time.

NORTHUMBERLAND HOUSE, STRAND.

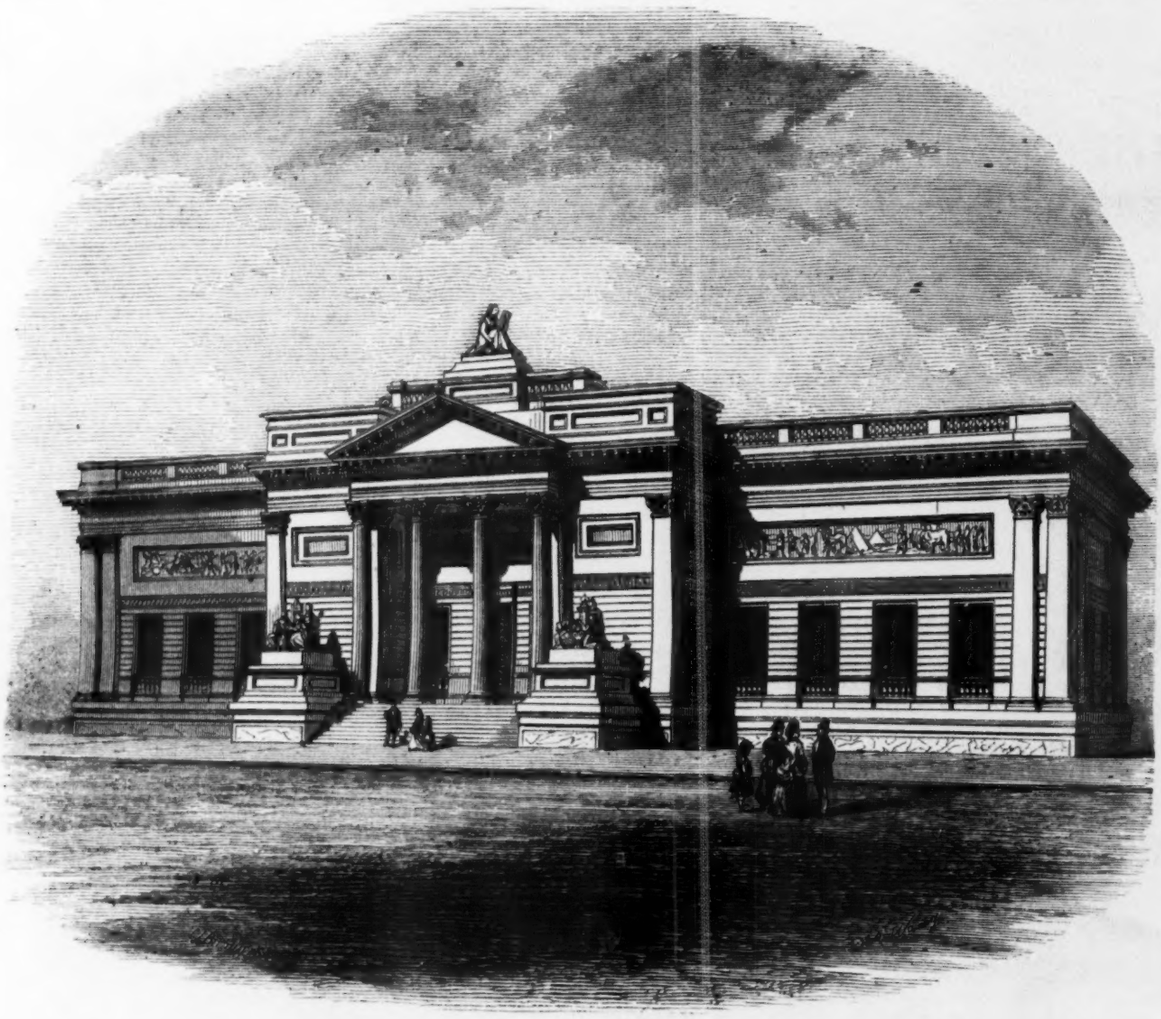
THE GLASS DRAWING-ROOM.

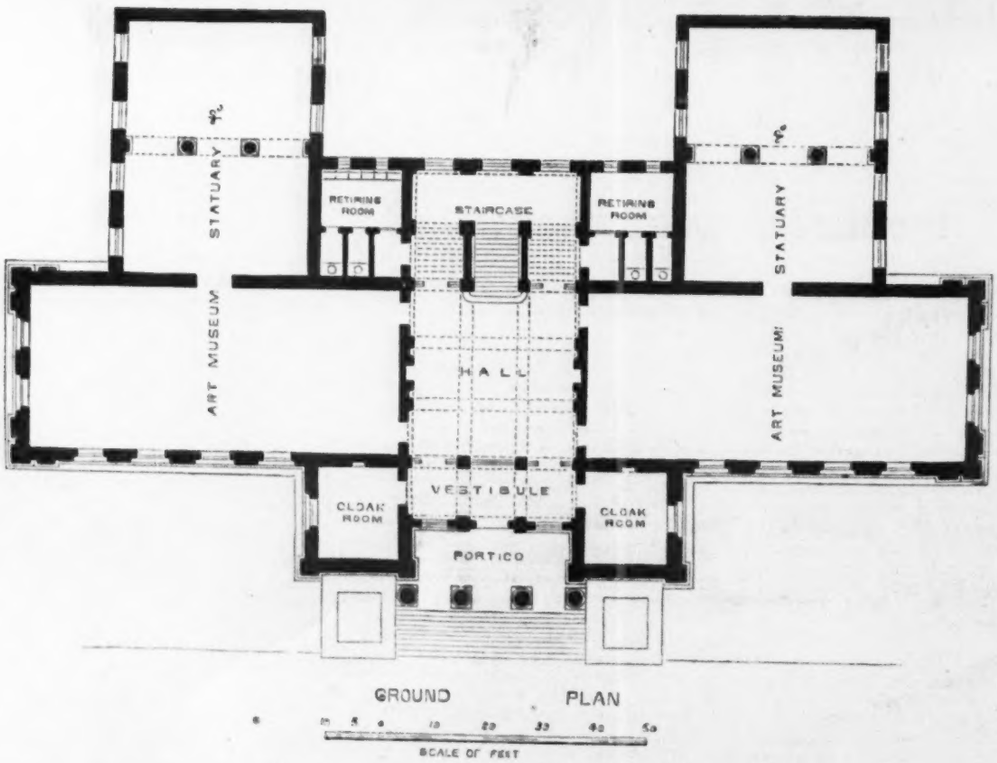
THIS room, of which we give an illustration, is one of the state apartments in the doomed mansion at Charing Cross. There is much richness in the style of the decoration of the room, yet there is a quietude about it very agreeable. The walls are covered with glass over some encrusted substance, which is red,—and from this colour the apartment has been sometimes called the red drawing-room. The pilasters, which divide the walls into panels, are dark green, picked out in the caps and reeding with gold; the panels and mouldings are enriched by patterns in ormolu fastened upon the glass. The ceiling is coved, the coving and ornamental part being the work of Cipriani; the main panels of the ceiling are from the hands of Angelica Kauffmann. The mantelpiece is of marble inlaid with porcelain; the firegrate is of silver, as is also the fender. There are two or three tables in this room whose tops are in mosaic work, particularly one of the pier-tables; the furniture being in rich dark satin, with a dull red pattern upon it, and the curtains of dark green satin, gives the whole room a very harmonious effect. This room contains some charming specimens of old Dresden, Sèvres, and Chelsea china. The chandelier is of ormolu and cut glass, somewhat resembling a fountain. The room was designed by Adams, of the Adelphi.

Since this memorandum was written the demolition of the room has been commenced. Upon examining the wall-covering already taken down there appears a coating of small pieces of metallic brightness, not unlike silver-leaf, with here and there a piece of gold; this coating is kept on the glass itself by some adhesive matter, and then backed with thickish paper; the glass is stained, and this gives the rich porphyry colour to the walls; the ormolu work is, of course, screwed on through the glass to the wall. The pilasters, which are green, are treated in the same way as the wall, the caps only being of wood picked out with gold.

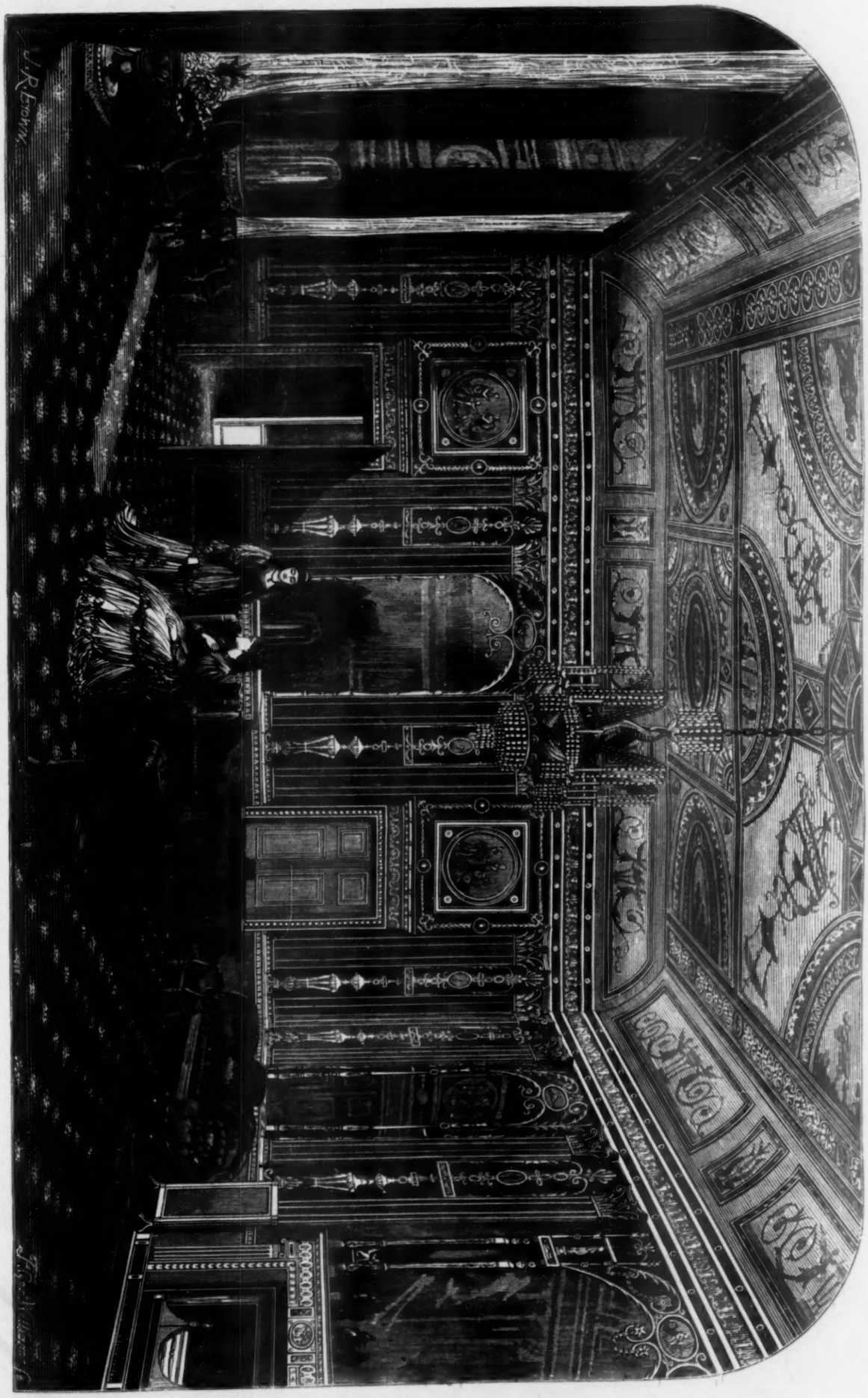
THE CONCRETE MODEL BUILDINGS AT HASTINGS.

IN the annual report of the Hastings Cottage Improvement Society, just issued, it is stated that the model building in Crown-lane, All Saints, opened last autumn,—of which an account was given in the *Builder* at the time,—is found to answer fairly. There are eighty-three apartments, divided into thirty-one tenements. The cost of building was 2,961*l.*; the site is valued at 350*l.*; and other items of expenditure (including an allowance for interest on unproductive capital during erection), make the total outlay about 3,580*l.* The estimated saving effected by using concrete instead of brick, is 406*l.*, or about 15 per cent. The present gross rental (273*l.* 13*s.* per annum, which amount will increase slightly in future years) will yield a net revenue sufficient to pay the annual interest on the money used for the erection, and afford a clear profit of about 50*l.* to the Society. Besides Scrivens's-buildings,—as the model buildings are called,—the Society has very recently built thirteen houses, or cottages, of concrete at Halton. These each contain five rooms, with water laid on, and other conveniences, and are let at 5*s.* or 6*s.* a week each. The total cost is expected to be about 2,500*l.* Altogether the Society possesses 207 separate tenements. The capital is now 24,654*l.* 17*s.* 2*d.*; and the gross rent from tenants last year was 2,008*l.* 2*s.* 2*d.* A dividend of 5 per cent. per annum has been constantly paid. To give encouragement to tenants who pay regularly, and keep their houses clean and tidy, it is proposed in future to allow a discount, "not in any case exceeding 5*s.*" for the past half-year. It is also proposed to stimulate the culture of window-plants by offering prizes for the best specimens of plants grown in window gardens. Dr. Greenhill continues his labours as honorary secretary of the Society.





THE WALKER ART GALLERY, LIVERPOOL.—MR. SHERLOCK AND MR. H. H. VALE, ARCHITECTS.



NORTHUMBERLAND HOUSE, STRAND THE GLASS DRAWING-ROOM.

SANITARY AUTHORITIES, INSPECTORS OF NUISANCES, AND MEDICAL OFFICERS.

SIR,—Although I see your paper regularly, my attention has only now been called to the excellent article in a recent number on the duties of an "Inspector of Nuisances," in reference to the question whether the office would be derogatory to an architect. You say, "certainly not. The status of the office requires elevation. Its importance in the social economy of the country is immense, but the ordinary conception of its importance has hitherto been, or until recently was, law." With all this I certainly coincide. But unfortunately very few boards of guardians or sanitary authorities appreciate the services of an engineer or architect, or will pay any adequate salary for a professional man; the very title of "surveyor" in the original Act of 1848 is a mistake, and has led to the appointment of unqualified men, while the higher duties appertaining to the office of a "surveyor" to a local board of health or sanitary authority belong to the profession of a civil engineer. I know an instance of a timekeeper to a local board, when receiving 30s. per week, being appointed "surveyor" to another local board at a salary of 250*l.* per annum. The man was not of course brought up to the profession, and had no pretentions to be looked upon as a surveyor, much less as an engineer; but I have since seen his name advertised with the addition of "C. E."—an adjunct which, probably, he considered the office he held entitled him to assume. Query! which was most to blame, the man or the Board?

It has become very much the custom for Local Boards to advertise that the officer will be expected to prepare plans, specifications, &c., for waterworks and sewerage, to survey and level, and advise generally on all sanitary improvements which appertain to the profession of a civil engineer, while they offer less pay than the wages, or rather earnings, of many a working collier.

It is to be feared that this want of appreciation of the true status of an engineer or architect has been very much induced by the course pursued by many successive Governments towards the profession; the most recent and notable instance being the offensive course pursued by Mr. Ayrton, as First Commissioner of Works, towards the architect of the Houses of Parliament. But it was only carrying out the same policy, in an offensive manner, which has been attempted more quietly on many other occasions. The result of all this is, that enormous sums are annually squandered away on public works from the blundering and inefficiency of the superintending powers. You rarely see a professional engineer or architect now engaged upon Government works without his hands being virtually tied by the meddling interference of some Government officials, who, if they had occasion to employ the same engineer or architect in their private capacity, would be only too glad to be guided implicitly by his advice. While in their official capacity as guardians or supposed guardians of the public purse, they will cause, by their injudicious interference, a lavish expenditure, with a result which the professional man is too often ashamed to put his name to.

I find I have been led on to touch upon points somewhat foreign to the real object of my present communication. I wish to call attention to one remark I was sorry to see in your otherwise excellent article; and the more so as it appears to militate against your opening statement as to the importance of the office of "Inspector of Nuisances," or what should more properly be termed "Sanitary Inspector." You say that he should not only "recognise the absolute right of the Medical Officer of Health to dictate what shall be done, but to go about his own work in the absence of any specific instructions from that officer." In the latter I entirely agree. But as to the medical officer dictating what the inspector shall do, I must beg leave, with all due deference, to take exception; and I must go further, and say that the office of *District* Medical Officer, as at present constituted, is worse than useless; for such an officer has now the power, with the sanction of the sanitary authorities, to become positively obstructive to an inspector who really knows his duty. The regulations of the Local Government Board very wisely leave it to the discretion of the sanitary authority whether the medical officer shall have any control over the inspector. This is perhaps the best that could be done so long as medical officers for large districts are tolerated at all. But this should be subject to the sanction of the Local Government Board to prevent its improper application.

It is true there may be some districts where very improper persons are appointed to the office of inspector. I have known an instance where a local board appointed a person who could scarcely write his own name to be inspector at six guineas per week, his only recommendation being that he had a brother in the town council. It is to be hoped that such cases are the exception; but where they do unfortunately occur the best thing the sanitary authority can do is to direct the inspector to act as the "man Friday" to the medical officer: the real object of the board it is presumed being accomplished by their *protégé* getting his salary.

But, as regards the appointment of medical officers, every union has its medical staff; and, as a rule, these appointments are made from merit, the emoluments being too small for them to be made *jobs* of, as is too frequently the case with the high-paid District Medical officer; and, moreover, very few medical men of ability will give up their practice for an appointment of one year, with the uncertainty of its being renewed. Whereas, the union medical officers, with a suitable addition to their salaries, might be made useful and able advisers of the Sanitary Authorities.

The hackneyed idea that by the employment of union medical men as medical officers to the Sanitary Authority, their private practice might clash with their public duties, is derogatory to any honourable mind. It is the same narrow-minded prejudice which too often prohibits surveyors to Local Boards from taking other practice. The system not only pre-supposes that an educated gentleman, whether a medical man or an engineer, might be deterred by private interest from doing his public duty independently, but also pre-supposes that landlords oppose the removal of nuisances from their premises. As regards the former I can only say, "*Honi soit qui mal y pense;*" and as to the latter, my own experience, as a rule, is quite the reverse. I have generally found landlords only too glad to have advice and suggestions as to the sanitary improvement of their property. But a good deal depends upon its being tendered in a courteous and unobtrusive manner, and not thrust upon them as a costly burthen. Hitherto, many landlords of small properties have not known what to do, and there has been no one to tell them. And if policemen, *et hoc genus omne*, are to be appointed Inspectors of Nuisances, on the principle that they are to act under a medical officer, these evils will still be perpetuated. It is not expected surely that medical men are to be qualified as engineers. Although I know of an instance where a medical officer was appointed at a salary of 500*l.* per annum, and not being able to find any legitimate work to occupy his time as a medical officer, bought up a number of elementary tracts and pamphlets on sanitary engineering, but soon satisfied those with whom he was connected, if not himself, that "a little knowledge is often a dangerous thing." Another reason why landlords have hitherto refrained from entering upon the sanitary improvement of their property is, that they have, from a mistaken notion of economy, refrained from calling in a professional man, and entrusted the work to some jobbing builder or mason, and the result has been disappointment and vexation; the alterations turning out, as might be expected, worse than useless.

It should, no doubt, form a part of the duty of an "inspector of nuisances" to report all cases of typhoid to the local medical officer, who will be on the spot to deal with them; but where there is a district medical officer, the inspector cannot officially do this, but must report to the district medical officer, and frequently a day must elapse before the latter can attend to it, as the inspector may be at one end of the district, while the medical officer for the district is at the other; unless it is to be assumed that the inspector and medical officer are to go their rounds together, like Crusoe and his man Friday, or the inspector is to become a sort of itinerant bottle-holder to the medical officer.

But this is not the only evil of the present system; and I am speaking from personal experience. When a medical officer is appointed to act for the whole union, he will often come into unpleasant collision with the local medical officers, and also private practitioners. By way of illustration we will suppose an outbreak of typhoid. In a large district neither the inspector nor the medical officer may have heard of this for several days after the outbreak, while the cases will doubtless have been under treatment by the local medical officers, or by private practitioners. Now, as before stated, it becomes the inspector's duty, under the present regulations, to report this to the district medical officer, thereby implying that he is supposed to have a keener perception of such occurrences than the medical officer. But, as before intimated, it forms no part of the inspector's duty to report it to the *local* medical officers. But, having reported it in due course, at the end of his day's labours, to the district medical officer, the latter can scarcely be expected in a large district to attend to it before the next day. If the case has been, as it probably has been, attended to by the local medical officer, he will know its precise features, and the stage it has arrived at. But in the midst of this the district medical officer enters upon the scene, and probably comes puffing in two or three days after the outbreak. Of course he makes the necessary inquiries, but the attendants and relations of the sick poor,—I beg pardon, I mean the "operative" classes,—are not always the best informants. The medical officer, judging from what he hears, may probably think that a wrong course of treatment is being pursued; and, if not very discreet, drops a hint to that effect, which, with a nervous patient, will often do more harm than all the medicine or advice of the regular medical attendant will do good. And this I have known to occur.

Under such circumstances the patients, or the attendant friends, will be sure to inform the local medical attendant, on his next visit, that the officer from the Board had been and objected to the mode of treatment. And as the "officer from the Board" is generally paid a large salary, in consideration of his giving up practice, and the local medical officer is too frequently only paid a nominal pittance,—about sufficient for an extra feed for his horse,—the people very naturally think that the officer from the Board is a superior being, whereas he too frequently has had less experience than the medical officer of the union; for the appointment being looked upon as a good piece of patronage, it is most frequently made a local job of. The required sanction of the General Board can scarcely operate as a check upon this; for so long as the officer holds the necessary diplomas, and there is nothing positively known to be objectionable in the selection, it cannot be expected that private motives for the appointment can be too closely inquired into, or become known; and, altogether, he may be a very fit and proper person for the position, if such an officer were really required for carrying out the sanitary improvements of rural districts; but my own experience is decidedly against this.

I fear I have trespassed too far upon your space on the present occasion; but the subject is of great and growing importance; and although I have felt it necessary to allude to special instances of abuse of or misdirected patronage, I have endeavoured to avoid any personal allusions which can possibly be identified by any but those immediately concerned; and we have some very high authority for clothing facts and living persons in the garb of fiction.

I have only to add, on looking over the above, that I must entirely disclaim any intention of associating or identifying jobbery in the same quarter from which I have drawn my illustrations of the evils arising from the present system of appointing medical officers for large districts. I have known both evils to exist, and therefore allude to them; but I do not wish or intend that it should in any way be considered that these are derived from the same source, or exist in the same locality.

Nottingham. B. CASTLE GANT.

ASSOCIATED ART INSTITUTE.

SIR,—In turning out some papers the other day I came upon several numbers of "Papers read before the Members of the Associated Art Institute. Session 69 and 70."

I find on reference that I was that year entrusted with the distribution to the members of the session's papers, and that those now in my possession are the balance remaining after such distribution was made.

As there are many connected with architecture and art who would no doubt be glad of a copy, and as the papers are by well-known names and the Society is now defunct, may I beg your insertion of these few lines stating that a copy can be had upon application addressed as below

STEPHEN S. PHILLIPS.

No. 10 Baker-street Portman-square.

THE ORNAMENTATION AND MOULDINGS OF BRITISH ARCHITECTURE.

MR. E. SHARPE sends us the second instalment of what promises to be, when completed, an almost exhaustive illustration* of the characteristic features of the period of late Norman-Gothic, which he has named the "Transitional." We have before pointed out the advantage to be derived from the study of this very peculiar and interesting phase in the development of our national architecture, in which the ornament, so essentially architectural and conventional in character, suggests new motives for the modern designer, even by means of specimens which in their original form are crude, and sometimes uncouth in treatment and proportion, but which might serve as a basis for very refined effects in ornament. The variety given to one type of decoration, the scallop, is in itself instructive, suggesting to us how much may be done in the way of original design upon received types of ornament, without always looking out for something entirely "original,"—a thing which in fact exists much less, either in ancient or in modern architecture, than many people suppose. The method of playing with the "scallop" feature is curiously illustrated in the capitals from Amney St. Mary (pl. 11), which, however, are certainly more curious than beautiful; in the upper capital from Romsey Church (pl. 12), with its curious little triple buds fringing the points of the scallops; and in those from Bibury Church (pl. 13).† These latter are particularly interesting, for we cannot have a doubt that we here see the origin of the little turned back volute so common in the Late Transitional leaf-capital, and its development out of the scallop ornament. These are both from the north arcade of the nave; in one of the subordinate capitals in the right-hand pier the leaf wraps round the lower part of the scallops, the point of it coming up into the angle between the semicircular disks in which they terminate; in the larger capital of the same pier a large bold leaf of the Late Transitional type curls up in a similar manner, with the point rounding into a disk, which evidently represents the front of the scallop with the circle completed. It only requires to reduce this disk a little in size and hollow it out, to have the characteristic little backward curl of the Transitional leaf precisely.

It is remarkable that in some of the details of these Transitional capitals, what we should now call the Gothic spirit of treatment is almost absent, and the capitals present that more thin, regular, formal design of fillets and enclosed panels which in feeling assimilates to Classic work. This is observable particularly in some of the caps in the large pier from the nave of Worcester (pl. 8), and in those from St. Cuthbert, Wells, and from Whitchurch, in the next plate. We have seen new ideas for capitals in a modern Bank in Classic style, which very much recalled these.

Among the larger examples are a very fine pier-capital from Jedburgh Abbey, the west doorway (south aisle) of Lincoln, the south doorways of Kirton and Aswarby; the latter a peculiar instance of the passage from Transitional towards what is generally called Early English, with a simple form of the "dog-tooth" ornament, combined with zigzags. The capitals also present the budding type of Early English foliage in a very simple and naïve form.

The drawings leave nothing to be desired in style and execution, and are up to the usual standard of excellence which has characterised the illustrations of English architecture published under Mr. Sharpe's direction.

We have on a previous occasion noticed the earlier numbers of another work‡ in which Mr. Sharpe is illustrating, on the complete and orderly system of arrangement which he has adopted, the whole series of mouldings of the various styles of English architecture. The third number, which has recently appeared, contains sixty plates, and exhibits two complete progressive series of arched mouldings, from the "Transitional" to the "Rectilinear" period (to adopt the author's nomenclature); the first series consists of the mouldings of pier arches, and the second exhibits door arches. The method of distinguishing the various periods by printing in different colours, which Mr. Sharpe initiated some time since, is consistently retained, and very much facilitates the easy and comprehensive classification of the contents; and the system of dividing the mouldings into sections according to the jointing, and where necessary printing one section under or beside another, enables large mouldings of many orders, such as the singular south doorway from Kirton, to be given without any diminution of scale, and without (except in one instance) the inconvenience of folded plates. This is a very important point, for as every one who has studied and drawn mouldings knows, a large scale is very desirable in their delineation; and in the comparison of different mouldings, uniformity of scale is almost a *sine quâ non*. In the present work, the whole of the mouldings are to a uniform scale of one-third the real size, which, when carefully drawn out, is, for purposes of study, almost equal to full-size sections, and much more manageable.

We may have more to say in regard to this publication on a future occasion, but it would be perhaps most fitting to defer any more detailed commentary till the completion of what, if it is carried throughout in the same style, will certainly be the most complete and exhaustive work on the subject which has appeared in this country.

* The Ornamentation of the Transitional Period of British Architecture, A.D. 1145—1190. By Edmund Sharpe, M.A. No. II., Part I., 20 plates. London: E. & F. N. Spon.

† We supply these numbers from the index; the plates in the copy sent, as in several works of a similar class lately sent to us, are unnumbered. Probably this omission arises from a desire to put new works in the hands of the press as soon as possible; but we take this opportunity of pointing out that it greatly increases the difficulty of giving references to special plates in reviewing.

‡ The Mouldings of the Six Periods of British Architecture, from the Conquest to the Reformation. No. III., Sixty Plates. London: E. & F. N. Spon.

INDIAN ARCHITECTURE, AND THE MANUFACTURES OF GLASS, TERRA-COTTA AND PORCELAIN.*

A GREAT deal of the earliest architecture and ornament of India is, like that of other countries, rude, coarse, and quaint, but with characters that are due chiefly to the climate and natural features of the country, which give a peculiar nationality and individuality which are purely Oriental.

One of the first impressions that are made on the mind by a careful inspection of these early records of Art in India, is that simplicity of form at first pervaded most of the styles, and that there was an inherent love of Nature, and a desire to represent by sculpture scenes or events, and persons who took a part in them, and the circumstances under which they occurred. Marks of gradual improvement are obvious in both the sculptures and figures, until the periods when complexity, elaboration of detail, and profuseness of ornament, took the place of some of the grand simplicity that characterised the works of the early Buddhist sculptors and architects, who took a just and correct view of the relative value of simplicity, beauty of form, and appropriate ornament, suited to enhance, but not to encumber or distract attention from the story to be told.

Perhaps the oldest and most quaint rock sculptures of India are the underground vaults and cave temples, with roughly-hewn representations of men and animals, recently brought to light by the late Mr. Breeks, Commissioner of the Neilgherries, and the Rev. Mr. Metz, of the German Lutheran Mission, and by Mr. Longley, Collector of Salem, and the Rev. Mr. Phillips. These are not decidedly cave temples, but they bear some resemblance to them in their structure and arrangements, as some of the rude sculptures are on the solid rock, while others are on separate slabs, of no great size, placed erect, and in straight lines; and others project at right angles, dividing the cave into partitions. In some localities the whole structure is subterranean, and covered by a huge flat mass of rock from 11 ft. to 13 ft. in length by 8 ft. in breadth, and from 8 in. to 10 in. in thickness. These sculptures belong evidently to very early periods when the worship of serpents and of the sun and moon were common. Along with the sculptures have been found antique pottery of very quaint forms, consisting of culinary, domestic, and other vessels, cinerary urns, containing bones and teeth of men, women, and horses; gold ornaments of considerable value, bracelets of cornelian, quartz, and felspar, cut, polished, and occasionally inlaid with a very hard enamel; tools and implements of iron and bronze, and some very delicate and tasteful bronze vessels of elegant shapes and of pure forms.

The pottery of the Neilgherries is evidently of older date and of a ruder period than that of Salem and of Coimbatore. Some of the latter is very like the pottery of the Greek and Etruscan periods. Large collections of these antiquities have been sent to the Indian Museum, and other museums at Madras and at the Neilgherries, and steps are being taken by the Madras Government to trace the origin, and to determine, if possible, the dates of these sculptures and antiquities. The quaintness of the head-dresses of the figures, with the hair as a chignon, sometimes on the top, at other times on one side, and occasionally in the form of a horn, point to early periods of history.

We now come to the Buddhist period, when some taste and refinement were introduced, and when snake worship, though still tolerated, was evidently supplanted by a purer form of worship, and by sculpture and architecture of better descriptions. The square, the circle, the pyramid, and the triangle, were the first forms selected for the basis of architecture, and with the Early Buddhists each of these forms had a symbolical meaning; thus, the square, from its solidity, was supposed to be typical of the earth; the circle, of water; the pyramid, of air; and the triangle, of fire. To this the followers of Buddha added a fifth element, namely, the winds, as distinct from air, and the symbol which they selected was a crescent. Much of the early architecture of India consisted of cave temples and sculptured rocks, some of them of a gigantic size, and of hard granite or gneiss, a few of magnesian limestone, and others of sandstone. The latter have, in most instances, suffered from the weather, and the forms and outlines have been nearly obliterated, while those in magnesian limestone, potstone, and chlorite, or serpentine rocks, are almost invariably sharp and in good preservation, while the rocks containing magnesia have become harder by exposure, although these rocks are generally soft, tough, and cheesy when first quarried. Some of the granites have become corroded on the surface, from the decay of the felspar and mica. Our architects may learn some useful lessons from the examination of the old cave temples and early Buddhist and Jain temples in India, as many of these have withstood the ravages of time and weather for periods varying from 800 to 2,400 years, while some of the sandstones employed in our cathedrals and public buildings have not lasted for more than two or three centuries. The sandstones of the Oolite period, I believe, have proved to be the worst; but some of those of the Trias, or New Red, and of the Old Red sandstone and Devonian formations, have not proved so durable as those of the true Carboniferous periods. And in this respect Edinburgh, Glasgow, and the Lothians, are, perhaps, more favoured with good durable building-stones than most other countries.

One reason why the buildings are in better preservation than those of Great Britain is, because the climate is drier, and mists and frosts are of rare occurrence. There is one class of rocks, however, that corrodes perhaps more in India than elsewhere, and that is the pure limestone and marbles, which are dissolved slightly on the surface by heavy rains, and become full of pinholes. The Hindoo builders are well aware of this, and of the relative durability of building rocks; this they have learned from an examination of their old buildings, and in describing these we must remember that about 2,600 years ago civilisation had made far greater strides in India, Japan, and China than in Europe, and that even before the times of Phidias and Praxitiles, Callimachus, Scopas, and Callicrates, men had lived, died, and been forgotten in India, but they had left sculptured on the rocks, marks and evidences of thought, that prove that the artists and sculptors were in the habit of studying from nature, and executing with considerable skill and taste, sublime, grand, and simple conceptions, that prove the existence of an elevated and refined taste, even in very remote periods of antiquity. Unfortunately, although some of these sculptures are in good preservation, several of them have suffered from the wanton and ruthless hammer of the conquering or succeeding races, who showed their contempt for the religious beliefs of the Buddhists and Jains, and tried to substitute by force or by fire and sword other forms of religion. Thus in some localities, as Bijanuggur or Humpee, which was the great centre of the Hindoo dynasties of Southern India from the thirteenth century, back to the time of Asoka, 2,400 years ago, and also at Mahavellipooram and Salluvan Coopum, twenty-four to thirty-two

* From a lecture delivered to the Edinburgh Architectural Association, on the 27th of May, by Alex. Hunter, M.D.

miles south of Madras, we see the remains of ruined cities, cave temples, rock-cut temples, monolithic temples of a considerable size, Buddhist baths and monasteries, Brahminical pagodas, and, lastly, Mahomedan tombs and mosques, built out of the *débris*, and with the very pillars and stones of the old Hindoo temples, but finished off with the domes and minarets of the East conquerors. Amongst the ruins are also to be found inscriptions on rocks and stones in eight different languages, some of which cannot be deciphered,—a strange and startling parody on the mutability of human affairs.

In wandering through some of these old, ruined cities, there is a great deal that reminds us of the times of Solomon, and that carries us back to even earlier dates; for it has been ascertained that both the ground-plan, the measurements, and the arrangements of the buildings correspond with those of Solomon's Temple, there being also a Holy of Holies and an oracle, and that the very idolatries that Joshua warned the Israelites to avoid were introduced and encouraged, as the worship of snakes or serpents, the golden calf, and of images of stone and wood, and of the sun and moon; but the most startling of all is the fact that there are numerous stones set up, and pillars and rocks with inscriptions and edicts of Asoka and of others who propagated the Buddhist religion. Now, it is a strange coincidence about this religion, that it is the nearest approach to Christianity; that there were ten commandments; and that the religion was one of toleration, of peace, and goodwill, that recommended itself so strongly to the nations of the East that for upwards of 2,000 years there have been more followers of this than of any other religion.

I shall draw your attention to the simplicity and grandeur of some of the architectural details which I have alluded to. The base of these early temples was a square, supposed to be typical of the solidity of the earth. This is well seen in the temples at Mahavellipooram and at Humpee, Wurungul, and at Bichookindab. In the latter place the square is surmounted by the triangle, typical of fire. This was afterwards raised into a pyramidal form, in which we see it in the goprums of modern pagodas. The circle was supposed to be typical of the sea or water, and the crescent was supposed to indicate air or the winds.

The sculptures in the cave temples and on the rocks of this period are also very grand and imposing, and some of them tell their story with a remarkable energy and simplicity; one, for instance, that I show you from the seven pagodas of Mahavellipooram, is supposed to be a representation of the spread of the Buddhist religion, of which I gave a description in a lecture which I delivered in Madras about two years ago, shortly after we had made some excavations and discoveries. In the same vicinity is also a very grand sculpture illustrative of a scene described in the "Rig Veda," lately translated and published by Max Müller.

I was in hopes that I should have been able to show you a complete set of photographs of several grand Buddhist sculptures, that we took in India, but they have not arrived by this mail. I may mention that they were taken for the Madras Government; but I can show you some of the ornaments of this and of the succeeding Jain periods, which are very rich and tasteful, and it will probably interest you to know that the last two lectures which I delivered in Edinburgh, before the Royal Society of Arts, on wood carving in India, and on works in precious metals, led to my receiving orders for 45*l.* for the purchase of articles similar to those exhibited, and of photographs of antiquities and ornaments. Messrs. W. Marshall & Co., jewellers, 24, Princes-street, were so much pleased with the Indian manufactures in silver, copper, beder-ware, and brass, that they gave me an order for a good collection of them to be procured from Madras; and Mr. Cadell, the late collector of the Tanjore district, has offered to procure the articles. Messrs. John Millar & Co., 2, South St. Andrew-street, have been so much interested with the beauty of the Indian patterns of the Buddhist and Jain periods that they have commenced to apply them to the decoration of glass.

WORMS IN THE WOOD.

SIR,—Can any of your readers inform me of a wash to kill worms in American birch, they having got very much into the fittings of a chapel? J.

EXPERIMENTS ON FIREPROOF CONSTRUCTION.

A FURTHER experiment, to test the efficiency of the fireproof construction adopted at the building now in course of erection near the Mansion House, for the National Safe Deposit Company, took place last week at Messrs. Easton & Anderson's works, Erith.

The furnace constructed for the purpose of the test was similar to that used for the first experiment, the length being 14 ft. 9 in., and the width 4 ft. 9 in. internally. The top of the furnace was built to resemble the brick-arched flooring now being carried out at the new building. The girder was also a counterpart of some of those now being used, and it was lined with fire-clay lumps precisely in the manner adopted at the building. A coat of plastering was also applied to the fire-clay to represent that which will form a finished surface to the beams in the actual work.

It was proposed to subject the girder thus protected to the action of a continuous flame one hour and a half, and a smouldering heat for twenty-four hours, this being considered a test equal to the largest fire that could exist in any one spot. The top of the furnace was loaded with five tons of pig-iron, equally distributed, which, with the weight of the arches added, is equivalent to a floor-load of nearly 3 cwt. to the foot superficial. This weight caused a deflection in the girder of $\frac{1}{16}$ of an inch in the centre. The fire was lighted at one o'clock, and the deflection of the girder at the centre was noted at intervals.

At three o'clock the fire was put out, and a stream of water was brought to play upon the beam. At half-past three one-half the upper part of the furnace was removed; further water was applied, and the load taken off. The girder then showed a deflection of three-eighths of an inch. At eleven o'clock the following day the deflection had reduced to $\frac{1}{32}$ of an inch, and the girder has since regained its straight form.

The whole of the fireclay was found upon the girder precisely as when first put on, and it was quite uninjured.

The heat of the furnace was so great that the brickwork forming the side was forced out of its upright position, and caused the girder to tilt slightly on one side, thus placing the beam at a greater disadvantage. It is stated that in the construction of the building such a possibility is provided against by the thrust of the arches being counteracted the one by the other.

The result of the experiment was considered extremely satisfactory, and gave evidence that the building near the Mansion House is constructed upon a system which would fight a good fight with a fire.

CO-OPERATION IN DUBLIN.

SIR,—The system of co-operation—or, as the late John Stuart Mill expresses it in that comprehensive chapter on the "Probable Future of the Working Classes," in his "Principles of Political Economy,"—"the association of the labourers with the capitalist,"—is beginning to make its appearance in one or two large firms in connexion with the building trade of Dublin, and therefore deserves a passing notice, if for no other purpose than to bring it under the consideration of the thoughtful and intelligent artizan.

By quoting from a work published as far back as 1848, which sets forth an instructive account of the success of a Paris employer, who for many years practised the system, Mr. Mill has touched upon a subject which well deserves the attention, even though tardy, of both employers and employed. The writer of this work states, on the authority of the experimentalist himself, "That the increased zeal of the workpeople continued to be a full compensation to him, even in a pecuniary sense, for the share of profit which he renounced in their favour."*

One of the greatest causes of complaint,—nay, of continual murmuring, on the part of daily operatives in general, and one of the greatest stimulants to fresh demands for higher wages,—is the rapid accumulation of riches, which, they observe, is the result of their masters' efforts in a few years.

Taking the building trade in Dublin alone into consideration, it is noticeable to the most superficial observer that the workman of to-day who is fortunate enough to procure as much capital as will enable him to execute one job by contract, seldom fails to advance so far as to become a thriving employer in a comparatively short space of time. It is not because of his good fortune in becoming an employer, or being able to sustain himself in that position, that makes his late fellows in the ranks look on with dissatisfaction, but because of the rapidity with which he is able to make money, and because they are compelled to contribute so much of their industry for the use of the capital which he commands. Now, as all cannot become employers, a change to alleviate the discontent at present so widespread is, at least, something desirable, and the system which admits the workman to a share in the profits of the capitalist seems to be a good plan, and would soon become a popular remedy for the general discontent. By its adoption, too, a direct and effective blow would be struck at the vexatious and pernicious practice of strikes, and the operations of trade unions would be confined to the advancement of the working-man's moral and social condition. If all employers were compelled by law or by custom to renounce some of their profits in favour of their workmen in addition to their wages, it would increase the general content of employers and employed, and confer a lasting benefit upon the country at large; for, at present, to quote the words of Mr. Mill,—"The working classes have taken their interests into their own hands, and are perpetually showing that they think the interests of their employers not identical with their own, but opposite to them." It is a notable fact, as Mr. Mill also remarks, that, at present, the workman is inclined to give the very least amount of work in his power in return for as much as he can possibly obtain in the shape of wages. This practice is caused by the non-existence of encouraging the workman by any substantial recognition of faithful services conscientiously rendered, and the belief on the workman's part, whether erroneous or not, that no matter how little he gives in return for his day's pay, his employer seems to lose nothing in the end, but, on the contrary, increases in prosperity year by year. His labour is not given willingly, but like drops of his blood, so much so, that it is often thought necessary, when one or two men are set to work, that a third must be employed to keep them from idling. The practice of rewarding the operative by presenting him with a bonus, in addition to his wages, of so much per cent. payable out of the yearly profits, has been in existence for some time in Dublin, but to a very limited extent, and would appear to be at present only an experiment, as it is in one instance confined to a portion of the workmen employed in the establishment where it was first introduced, and but imperfectly carried out.

When the master has made his contract with a customer, a certain time is allowed by him for the execution of the job, and if the workman is able to perform his task in less than the allotted period, he is entitled to a bonus, but not equal to the whole value of the time he has gained; but only to a per-centage of that time, if the profits of the establishment have increased beyond what the employer thinks himself entitled to upon his capital.

This system will be seen at the first view as open to objection; for if the time allowed by the master is not thought sufficient for the proper execution of the work, which often occurs, it has the effect of making the operative less careful, and inferior workmanship is the natural consequence. Another cause of complaint amongst the workmen under this system is, that as the books of the establishment are made up only once or twice in the year, the man who contributes to the profits for three months of that year, if he be unemployed through slackness, never receives anything, and his quota goes to enrich the master, or the favoured few who may be kept in employment during the whole twelve months.

This last objection is at present a serious consideration between the representatives of another firm, who are desirous of adopting the practice of allowing a yearly bonus to be paid out of the profits, and the officers of a local trade body. The former, it appears, requested the secretary of the latter to supply them with men at 10 per cent. less than the standard wages, and thus embark a portion of their weekly pay in the business of the concern.

On the part of the workmen I can affirm that the majority think the offer fair enough, if the difficulty of dealing with those who might happen

* *Vide* "Principles of Political Economy," by J. S. Mill, p. 463.

to be employed for a short time in the establishment could be got over, and that the operatives were allowed to have a voice in choosing a superintendent; for very often, in Dublin, at least, where the capitalist is not a thoroughly practical man, incompetent foremen are chosen, whose management is a continual cause of dissatisfaction to the workers, even in the present state of things. But to get over the difficulty which presents itself with the diminution of the number of workmen at slack periods, the only plan which seems practicable is a general adoption of the system, so that, if a man were employed at three or four different establishments during the year, he could call upon each at the end of that time for his share of the profits to which he contributed for two, four, or six months, as the case might be. The plan certainly is not new, except in Dublin, and as it has been adopted with gratifying success by numerous capitalists elsewhere, those in Dublin who are favourable to its working should receive every encouragement, and no opportunity passed over which would contribute to its general adoption. There may be found some amongst the operatives whose prejudices would be hard to be got over, but as these, most singular to say, would be mostly found in the ranks of the old men, the opposition would not be lasting, since there is a general desire on the part of the young and vigorous to yield to the spirit of the times, and who are often heard to complain against the notions of their fathers, many of whom think that their used-up ideas should be received with general applause. In fact, it is generally admitted by the most intelligent of the young men of the trades of Dublin that the old men of twenty years ago, with opinions of forty years' standing, are so many stumbling-blocks to their advancement, and it needs only a little perseverance upon the part of the former to set them aside and carry the day in favour of reform.

As the example set by others, and the results of their experiments, should be as widely known as possible, I refer the reader who takes an interest in the subject to Mr. Mill's treatise on Political Economy, book iv., cap. vii., page 455, where many sound opinions will be found in favour of such a course as admitting workmen to share in the profits realised. J. D.

THE FOUL STATE OF RUNCORN.

IN a coroner's inquiry on a fatal case of fever supervening on an accident to a railway *employé*, a medical man, Mr. F. M'Dougall, gave evidence, in which he said he could not account at first for the fever symptoms, as the house was always kept very clean, and he at length inquired about the condition of the ashpit, and on looking at it found that it was filled up above the wall, and an opening had been made with a fork against the wall which was behind the seat, and in it there was a large quantity of fœtid liquid matter from which emanated very offensive smells. He asked the wife of the deceased if she had given any information about the state of the ashpit, and she said she had told Mr. Barker, the nuisance inspector, about it. The deceased died of an attack of typhoid fever of a low type, following an attack of erysipelas supervening on injuries received from a crushed arm. The witness had had large experience in accidents, but never before saw a case like the present one, and was at a loss to account for the symptoms until he became aware of the condition of the ashpit. Persons suffering from accidents and open wounds were liable to erysipelas, and a person in a low condition was liable to take on a typhoid state, and the deceased would not in all probability have suffered from the fever if he had not been in a low state consequent on the injury to his arm. He had no hesitation in saying that but for the attack of fever the deceased would have been going about again in a few days.—By a Juror: The Improvement Commissioners, of whom he was one, had the control of the emptying of the ashpits in the town, but he could not say whether or not they had let the contract for the night-soil at such a low figure as to disable the man to employ sufficient men, horses, and carts to do the work.

A juror said it was well known in the town that the ashpits in many parts of it were in a fearful condition, and that the work of emptying them was very far from being done as it ought to be. The late contractor asked 700*l.* for doing the work, and the present contractor had taken it for 450*l.*, and this was considered to be such an excellent arrangement, that a certain Commissioner had gone about the town pluming himself on the supposition that he had been the means of saving 250*l.* of the ratepayers' money!

The jury returned a verdict that the deceased died from "Typhoid fever"; and they also said they were of opinion that the offensive state of the ashpit and the privy was the cause of his being attacked with fever; and understanding that the same state of things existed in other parts of the town, they requested the coroner to call the attention of the Runcorn Improvement Commissioners to the subject.

Exemplary "Improvement Commissioners" these!

THE NEW CORN EXCHANGE, CAMBRIDGE.

THIS building, the foundation-stone of which, as we announced, was laid the other day, is to be constructed of the white bricks of the locality, sparingly relieved with stone terra-cotta and coloured bricks. The style adopted is Venetian Gothic, as being well suited for the materials to be used. The roof will be formed of rolled iron ribs, each forming a semicircular arch in one span; these ribs are being prepared in Belgium, where ironwork can now be had at prices not enhanced by strikes and combinations among workmen in the coal-pits and ironworks. They will be shipped from Antwerp to Wisbech, and floated to the Great Bridge in lighters. The tie-rods of the roof will be combined with gas-pipes and jets, so that the building may at night-time be illuminated by transverse lines of light upon the principle that has been found effective in the galleries of the South Kensington Museum.

The foundation-stone is a block of Cornish granite, from the Cheesewring quarry.

The site of the new Exchange is in Wheeler-street, and was in the Middle Ages occupied by the Priory of Friars Hermit, and so excavated by them and their predecessors to obtain gravel to form cellars, fishponds, and for other purposes, that it was necessary to dig down through the previously-disturbed ground and rubbish 10 ft. at least in every part before the maiden soil could be met with that was sufficiently solid to bear the weight of the new building.

The whole of the depth excavated has been filled in with concrete made of Cambridge gravel and hydraulic lime from Barrow-upon-Soar, in Leicestershire.

Upon the concrete, the walls have already been raised 4 ft. high all round.

UTILISATION OF SLAG AS BUILDING MATERIAL.

THE value of the blast-furnace slag, so abundantly heaped in the vicinity of all blast furnaces, is being again tested. Experiments in the North of England have shown that it is capable of being turned by suitable machinery into cubes for building. It is now believed that without this preliminary operation blast-furnace slag can be employed in the erection of tenements. Trials that have been made by Mr. A. S. Hill, one of the members for West Staffordshire, have shown that, ground up and mixed with a small proportion of pulverised sandstone and cement, it can be used in a moist concrete state in the making of walls and floors; and that the operations in wall-building, for instance, can be carried on at the rate of about 18 in. in height per day. The interval is sufficient to allow the composition to set and acquire consistency. In this way Mr. Hill is building cottages on his estate at Oxley Manor, Wolverhampton; and acting upon his suggestion, Sir George Elliott, the well-known colliery proprietor, is understood to have in the same manner utilised blast-furnace slag in the erection of some 200 miners' cottages. Earlier investigation by Mr. Hill showed that the mixture, subjected to heat, made excellent building cubes. Although Mr. Hill has to convey the cinders a considerable distance, yet his calculation is, that his materials will cost him just one-third less than would result from the use of bricks. If, however, the erections should be made near to the slag-heaps, then the saving would be much greater. From this it is concluded that all ironmaking districts contain in their refuse cinders a building material of a cheap and durable character, eminently adapted for small dwellings; that floors can be laid without either timber joists or iron girders, and that the erections not only become pre-eminently cleanly, but likewise fireproof, and the whole structure impervious to external damp. So lasting are the erections thought likely to become, that the leading objection brought against them is, that if alterations should be needed, it will be almost impossible to make them. It is understood that Mr. Hill was led to make his experiments by noting what is being done by the Peabody Commissioners in some of their recent erections.

These views appear to be very promising, but we should like to know if any skilled assayist or analytical chemist has been consulted as to the general chemical constitution of the furnace-slags. This we ourselves know, that in many cases metallic sulphurets form no small ingredient in the composition of metallic ores; and that while the sulphur is extracted from the metal by being attracted to other bases, many sulphurets are liable to rot slowly into oxides *and sulphuretted hydrogen*, by means of mere water or damp, and this would be a serious objection to the use of slag as a building material.

POPE AND BLACKSTONE'S GOTHIC COMPARISONS.

THE Shakspearian drama and the laws of England are very dissimilar subjects, yet nearly parallel passages may be found in Pope and Blackstone, in which the poet and the lawyer compare the drama and the law to Gothic architecture. Pope concludes his preface to his edition of Shakspeare with these words:—"I will conclude by saying of Shakspeare, that with all his faults, and with all the irregularity of his drama, one may look upon his works in comparison of those that are more finished and regular, as upon an ancient majestic piece of Gothic architecture, compared with a neat modern building; the latter is more elegant and glaring, but the former is more strong and solemn. It must be allowed that in one of these there are materials enough to make many of the other. It has much the greater variety, and much the nobler apartments, though we are often conducted to them by dark, odd, and uncouth passages. Nor does the whole fail to strike us with greater reverence, though many of the parts are childish, ill placed, and unequal to its grandeur."

Blackstone, in his "Commentaries," speaks thus:—"Our system of remedial law resembles an old Gothic castle erected in the days of chivalry, but fitted up for a modern inhabitant. The moated ramparts, the embattled towers, and the trophied halls, are magnificent and venerable, but useless, and therefore neglected. The inferior apartments, now accommodated to daily use, are cheerful and commodious, though their approaches may be winding and difficult."

It may be doubted whether the poet or the great lawyer knew much of Gothic architecture, whatever he might know of the drama. The Gothic style was in the shade and despised because ill-understood in the days of Pope and Blackstone, but judging their views in the spirit of the times in which they lived, their Gothic comparisons were nowise far-fetched. Had both lived to witness the Tichborne trial and the building of the New Courts of Justice, they would have found food for comparisons that might be drawn with dramatic effect on the system of the law's difficult windings and the style that fits it to a,—t.

NEW CEMETERY FOR HEADINGLEY-CUM-BURLEY.

PLANS have been selected for burial-grounds at Lawns Wood for Headingley and Burley. In the chosen design, which is by Mr. G. Corson, architect, Leeds, a formal arrangement has been avoided, both in the laying out of the ground and the architectural features. A winding carriage-drive leads from the gates and lodge up to the chapels, which are placed about 100 yards from the public road. From the chapels a walk is laid out leading to the further extremity of the ground, and into other walks which wind round the burial-ground, leaving a broad belt of trees between them and the boundary-wall. Other walks unite with these in various directions. The centre drive and walk will divide the consecrated from the unconsecrated ground. The chapels and lodge are intended to be built of stone, and roofed with tiles. The chapels are placed at right angles to each other, and are connected by a cloister, with arches supported on pillars on each side.

A robing-room is attached to each chapel. The Episcopal Chapel has an octagonal belfry-turret at the angle next the cloister, the lower part being utilised as a tool-house. The chapels are kept low, and have projecting eaves, and the walls are buttressed. They are lighted by pointed windows on each side, each of two lights, with circle within the containing arch. The Dissenters' Chapel has a window of three lights in each end gable; and the Episcopal Chapel has a small apse at the end where the desk will stand. The lodge has a gabled roof and mullioned windows. The entrance-gates are proposed to be framed of pitch pine, with stone piers and wing walls.

OPENING OF SOMERSET BRIDGE, HUDDERSFIELD.

THE new bridge which has been erected over the river Colne, at Huddersfield, has been opened and named by Lady Guendolen Ramsden, amid very general rejoicings. For a long series of years there has only been over the Colne, separating Moldgreen from the inner districts of Huddersfield, an old bridge,—narrow, with scarcely any footpath, and extremely inconvenient. Mr. J. H. Abbey, the borough surveyor, offered to prepare plans of a new bridge, and to undertake the general superintendence of the work, and his offer was accepted by the Long Bridge Committee, and ratified by the General Council. The structure has been erected as nearly as possible in accordance with the original design.

The new bridge contains only one arch, spanning 70 ft., resting upon the springers of two abutments, each of which contains tons of material,—ashlar stone, bedded and jointed; and there are thirteen springers which are so locked back that their whole weight on each side of the abutment is brought into play in resisting the pressure of the arch. The stones required to form the springers were such as could not be found in any of the quarries in the Huddersfield district, and the contractors had therefore to obtain them from Horsforth quarry, on the line between Leeds and Harrogate. The parapet is between 4 ft. and 5 ft. high, and the coping stones are of Newry granite. The roadway is perfectly level, and the finished surface is about 6 ft. lower than the old bridge, so that steep ascents are avoided. The carriage-way is 30 ft. wide, and it has been laid with 3½ in. Carvarvon granite setts; and on each side of the roadway there is a footpath 9 ft. wide.

Mr. Abbey has performed the part of engineer as well as surveyor; Messrs. Graham were the contractors; and Mr. Redfearn was the clerk of works.

What the actual cost will be it is impossible to say, but it will be over 12,000*l.*, we are told.

THE PROPOSED NEW TOWN-HALL AT WOOLWICH.

THE Woolwich Local Board have determined to take action with reference to the erection of a new town-hall, which, as has already been stated in the *Builder*, a private company propose to build. At the meeting of the Board last week, the subject was brought forward by Mr. Hughes, who maintained that it would be much better for the Board to take up the matter than to leave it to a private company. Mr. Hughes's proposal was that a town-hall should be erected capable of accommodating 1,000 persons. He observed that in a few years many of the Board's loans would expire, and as the local taxation was about being reduced by the rating of Government property, the money could easily be borrowed from the Metropolitan Board of Works, or the Public Works Commissioners, repayable, with principal and interest, over twenty years. He observed that the site on which the present hall and Board's offices stood was freehold, and that a new town-hall might be erected on the stone-yard, the present hall being retained for smaller meetings. They wanted such a hall, and it would be a credit to the town and to the Board.

In the course of a discussion on the subject, some members objected to the proposal on the ground that the rates were at present rather high; and the chairman thought the project was premature, as a company of spirited individuals proposed to erect a town-hall without any expense to the ratepayers of Woolwich.

Mr. Hughes's proposal was, however, agreed to, and the carrying out of the project was referred to the General Purposes Committee.

SALE OF BUILDING SITES AT BRIGHTON.

THE surplus of the land acquired by the Brighton Corporation for improving the top of North-street at its junction with Queen's-road, known as the "White Lion Corner," has been sold by auction at the sale-rooms of Messrs. Parsons & Son; Mr. Peter Wilkinson, auctioneer, officiating.

For Lot 1, adjoining 131, Queen's-road, having a frontage of 20 ft. and a depth of from 60 ft. to 63 ft., the first offer made was 400*l.*, which was increased (by sixteen biddings) to 650*l.*, and the lot was knocked down at that price to Mr. Fielders.

Lot 2 (a similar plot to Lot 1, and adjoining it on the south) was started at 500*l.*, and was increased (by eleven biddings) to 650*l.*, and the lot was knocked down to Mr. George Lynn for that sum. Similar lots (3 and 4) realised 640*l.* and 660*l.*

Lot 5 was the corner plot, having a frontage to North-street and Queen's-road of 87 ft. with a depth of 30 ft. This lot was knocked down for 2,450*l.* to Mr. Edward Yates, London.

Lot 7 (of similar dimensions to Lot 4) was started at 500*l.*, and the biddings rose by five offers to 660*l.*, the name of the purchaser being given as Mr. Alfred Lucas.

SOCIETY OF ARTS CONVERSAZIONE.

THE annual *conversazione* of the Society will be held on Friday, June 19, at the South Kensington Museum. The issue of tickets is now proceeding.

The arrangements for the evening will include a vocal concert, consisting of glees, by the London Glee and Madrigal Union, and a promenade concert by the band of the Grenadier Guards.

The reception will be held in the South Court by General F. Eardley-Wilmot, R.A., chairman, and other members of the council.

The Society's gold medal, or twenty guineas, is offered for an improved lamp or means of illumination, suitable for railway passenger-carriages, that shall produce a good, clear, steady, durable, and safe light.

The twenty-third annual conference between the council of the Society and the representatives of institutions in union, will take place at the Society's house, on Friday, the 19th of June.

THE DEMOLITION OF THE "MANSION HOUSE" AT HACKNEY.

THIS week will witness the entire demolition of another of the fine old red-brick mansions which distinguished the ancient hamlet of Hackney proper. Each season sees one or another old structure disappear. In the present instance, the building is known as the "Mansion House," as a marble tablet with that name was inserted midway in the front. The old dwelling was an admirable specimen of both plain and ornamental brickwork, and the house probably dated back to the early days of Anne, or the first George. It had front and side hall doors, flanked with fluted pilasters with capitals, jamb framings, and surmounted with circular pediment. At either end of the front ran up projecting pilasters, which broke into the moulded cornice at top. Under each of the windows in front and side there were slightly projecting panels of brickwork. The ornamental brickwork was of finer description than the body of the building, and the moulded portions appear to have been wrought by hand, and rubbed fine, as was common in old workmanship. Nearly every room within was framed wainscoting to the ceiling with a cornice also of wood, with the usual surbase dado as skirting below.

The hall and staircase were wide, and the wainscoting was continued in keeping with the other chief rooms up to the head of the staircase. A moulded handrail with ornamental balusters, and a wide and well-formed scroll and curtail step, distinguished the stairs. The doors, shutters, and fittings had all raised panels. The kitchen and wash-house had marble troughs or sinks, and without going into a detailed description it may be said that the old mansion, in every particular, formerly was a representative one of its class. An immense amount of timber was contained in its roof, floors, and other fittings, and the flooring was dowelled or rather keyed at intervals.

The old mansion was a five-story one, counting its dormer which did not show in front. It has been for some time unoccupied, though for many years previously it was used for the "Elizabeth Fry Refuge," and other charitable institutions. Formerly it had extensive gardens, but the construction of King Edward's-road and the erection of the house-property thereon and adjacent, curtailed to a small limit its grounds. Three houses with shops flanking Mare-street Triangle, are, we understand, to occupy the site of the old "Mansion House" of Hackney.

THE CRYSTAL PALACE AND ITS VICISSITUDES.

SIR,—I am old enough to remember the birth of the Crystal Palace in Hyde Park, and its second advent on Sydenham hills two decades ago. I recollect my first visit to those delightful courts, abounding in alabaster and marble, statuary and pave. Enchanting and real was my impression here. Alas! that the poetry should be dispelled! I recently retrod these gay saloons, and found Old Time had not worked wonders, but dilapidations. My alabaster is visibly plaster, my variegated marble is compo, coloured skin-deep; cracked, broken, and chipped are many things, the work of time or man? I missed some busts of eminents, but found their remains in a lumber hospital near; here are many fallen great ones,—empty pedestals with bygone names that told of the departed; the huge sphinxes have "hopped" it; the antediluvians may be at the bottom of the lake (I did not wait to see them rise again); cascades, courses, formations, and even the seats are cracking up. Sir, the most painful sight was long terraces of masonry, concrete, and brick arches that have fallen down. The *débris* is left for some reason,—perhaps to point a moral, &c.,—or to inspire awe of modern contracts that fall in early years, and die of youth's decay. The faults are plainly visible when you scramble up the rocks; I hope some of your readers may ponder here, see, mark, and learn to excel. I do not disparage the Crystal Palace,—not I. Collectively, it is replete with instruction and amusement. While protesting against premature decay, I allow that the Crystal Palace and contents have as much right to get old and dilapidated as your correspondent.

R. T.

CLEANING WINE BOTTLES WITH SHOT.

SIR,—You quote a paragraph that appeared in the *Globe* in which lead poisoning is said to result from the practice of cleaning wine-bottles with lead shot, it being stated that carbonate of lead is formed which adheres to the glass, and afterwards combines with the acid of the wine, thereby poisoning the drinkers. It does not appear how a carbonate of lead could be formed in this way, unless *pure* water, either rain or distilled, was used in the process, * and the lead left for some hours in the water, when we know that a carbonate will be formed; but this is not likely to be the case in the simple process of bottle cleaning. I think a circumstance that was brought to light some time ago in one of our law courts will help to explain the cause of lead poisoning from the use of certain liquids called "wines."

A manufacturer of English "champagne" purchased a soda-water machine of a maker for the purposes of his trade, but it was found that the "wine" produced by this machine made the users of it ill, with all the symptoms of lead poisoning, and, by chemical analysis, lead was found in the liquor. Upon further investigation it appeared that the maker of the machine had soldered some parts of it with lead, which had been attacked by the acids used in making the beverage, and become dissolved therein. The "wine" maker brought an action for damages against the machine-maker for having used an improper material in the construction of the article, but the latter replied that the machine was intended for soda-water making, in which there was no acid to attack the lead, and therefore he was quite justified in using it. I think, therefore, that persons need hardly fear being poisoned through drinking wine out of bottles cleaned with *lead* shot, provided they get a beverage that has not been concocted in a machine in which solder has been used.

E. W. T.

* Our correspondent seems here to overlook "the acid of the wine" of which he had just spoken, and from which the lead might get the requisite oxygen and carbon to form the "carbonate of lead" *after* the cleaning.

ST. JAMES'S CHURCH, PARSONAGE, AND SCHOOLS, COLLYHURST.

ST. JAMES'S church was consecrated on the 20th ult. by the bishop of the diocese. The site of the church and parsonage is at the junction of Richardson-street and Teignmouth-street. The church is in the Early Pointed style of architecture. The principal entrance to the church is from Richardson-street; the plan comprises a nave with side aisles, total length about 93 ft. by 59 ft. wide, and transepts additional. The height to the ridge is 75 ft.

The pointed arches on each side separate the nave from the aisles and transepts; those to the transepts and chancel being of noble proportions.

The nave is terminated by a chancel about 25 ft. by 28 ft., and is approached from the nave by five steps; the nave has a lofty clearstory with coupled windows. The organ-chamber, minister's and choir vestries adjoin the chancel. The tower is at the corner of Richardson-street, and on the ground floor forms one of the principal entrances to the church.

The external walls are faced with Yorkshire parpoints and ashlar dressings. The pillars of the nave are of red Mansfield stone, with moulded and carved caps of Bath stone.

The roofs are of high pitch, with open framed and moulded principals, supported by carved corbels, with granite shafts to each; those to the chancel being more elaborate than those of the nave.

The church has accommodation for 806 persons; 384 sittings will be unappropriated. The clock has been provided by Messrs. Gillett & Bland, of Croydon, and is intended to be illuminated. The organ has been built by Messrs. W. Hill & Son, of London.

The parsonage in Teignmouth-street adjoins the church, and is faced externally with masonry similar to the church. It comprises dining and drawing rooms, study, kitchen, and other offices, six bed-rooms, &c. The internal woodwork is of pitch pine; and Messrs. Ellis & Hinchliffe were the contractors for the church and parsonage.

The boys' and girls' schools are situate opposite the church and parsonage.

The plan comprises boys' and girls' schools, 48 ft. by 22 ft. and 52 ft. by 22 ft. respectively, with class-rooms, lavatories, &c., to each, adjoining also are residences for the master and mistress.

The building is faced externally with white headers, dressed off, pointed and relieved with masonry. Internally the walls are of brick, prepared for painting.

Each of the schools has a separate playground.

The site of the infants' school is in Ryder-street, adjoining the parsonage, and comprises one school, 55 ft. by 26 ft.; class-room, 20 ft. by 18 ft., under which is a cellar, fitted with boiler, &c., adapted for tea parties.

Messrs. Crellin & Bailey are the builders of the schools.

The total cost of the church, parsonage, and schools, including the land, will be about 26,500*l.*, and is the gift of Mr. C. P. Stewart, of the Atlas Works, Manchester. Mr. R. L. Corlett acted as clerk of the works throughout, and the whole were executed from the designs of Mr. John Lowe, architect, Manchester.

SANITARY ENGINEERING.

SIR,—MR. BALDWIN LATHAM has recently published a work (principally a compilation) which he has designated "Sanitary Engineering." The first Board of Health reports have been drawn upon, both letterpress and diagrams, as also "The Suggestions as to Plans, Sewers, &c.," prepared by Mr. R. Rawlinson, and published by Messrs. Knight & Co., for the Stationery Office. Mr. Latham's book consequently contains some reliable information. Plate No. 1, at p. 88, is a plan of the Dantzig Sanitary Works, which many persons think is the design of Mr. B. Latham, though the name of E. Wiebe, C.E., is upon the plan, with that of Mr. Latham, and Mr. Aird, the contractor. The sewerage of Dantzic is, however, both in plan and in execution, the work of the eminent Prussian engineer, E. Wiebe, who came over to England some fifteen years since and inspected the Metropolitan Works; as also those at Carlisle, Lancaster, West Ham, and other places. The plan of works adopted for Dantzic is that of right lines, with manholes, or lampholes, at all changes of line or of gradient. This plan was devised some twenty-two years since, by Mr. H. McKie, at Alnwick, and has been subsequently matured by Mr. R. Rawlinson and Mr. John Lawson, Messrs. McKie and Lawson having both been resident assistants under Mr. R. Rawlinson, who sewered Berwick-upon-Tweed, Alnwick, Morpeth, Penrith, Carlisle, Lancaster, West Ham, and other places, on this right-line and manhole plan, which is now fully recognised and acted upon. Sewers and drains so designed and executed are under inspection at all times, which is a great advantage, as the Sanitary Engineer is master,—he knows where his sewer is at any intermediate point, from manhole to manhole, and exactly what depth it is below the surface. The manholes and lampholes can also be used for inspection, for cleansing, for flushing, and for ventilation.

This question of sewer ventilation is of the utmost importance. Sewers and drains should be ventilated freely, and direct to the external air, by openings (in sewers) not fewer than eighteen to the mile, and all house-drains should be ventilated outside of the houses; if by pipes against the house, then not less than 3 in. in diameter. All closet-traps should be ventilated, and all water-closets at the ceiling to the outer air.

AN ENGINEER.

VAULTING AT THE INSTITUTE.

SIR,—I have read with some surprise a considerable portion of the prize essay on "Vaulting," the reading of which formed the main business of the evening at the last Institute meeting, and part of the discussion on which you printed.

It does not quite appear whether the prize was offered with a view of encouraging young architects to work up a subject, or in order to gain a valuable essay from some one who had given the subject special attention. If viewed in the former light, the essay in question deserves all the commendation it has received. But in any other light it seems scarcely suitable that the Institute, numbering among its members most of the ablest architects of the day, should devote a meeting to the reading of an essay which really appears to be only a well-drawn-up abstract of what has already been published in standard works, and seems to contain no new information or experience whatever.

If it is intended as a compliment to the author of the essay that he should be invited to read it, that may seem a very proper thing to do; but it would surely be wise to make it clear on what ground a paper of this class is read. Otherwise, the impression produced outside by a detailed report of the meeting might be, either that the members of the Institute have given very little study to the history of vaulting if they required this information in regard to the essay; or otherwise that the leading body of architects were gathered together to listen formally to a *resumé* of facts and theories with which every tolerably educated member of the profession is supposed to be well acquainted. Either impression would be unfortunate.

RIDGE-RIB.

PICCADILLY AND LEICESTER-SQUARE.

THE continuation and opening out of this great central boulevard was suggested in a recent number of the *Builder*, and now that the adornment of the square is nearly complete, and ready for opening to the public, it may be well to specify that the line of Green-street and Hemming's-row runs nearly direct from the south of the square to King William-street, at the grand piazza of St. Martin's Church, and thence continuous to the mid-Strand, with which it nearly alineates at the junction opposite to Coutts's bank, to which point this line would be 200 yards nearer than that by Regent-street or Haymarket. Green-street has a mean width of only 36 ft., and, although wider near the entrance, would require the removal of one house (19 ft. frontage) at the south-east angle of the square. There are thirteen houses with paltry shops on the south side, which should all come down to increase the width of the thoroughfare to at least 56 ft., and give place to more important shops and offices. At Castle-street, to complete the alineation with Hemming's-row, three old houses should be removed, and a range of five or six more frontages erected, extending to the entrance of the Friends' Meeting-house. At the St. Martin's-lane end of Hemming's-row, where the width is but 27 ft., the demolition of one house (south-east angle) would be indispensable, this being at present used as "temporary Ordnance offices," as is also the old workhouse adjacent as "Ordnance model stores." This workhouse occupies half the south side of Hemming's-row, and without a portion of its frontage (18 ft., next to the corner of St. Martin's-lane extending to an acute angle towards the barrack-yard) no improvement could be effected. Seeing then, that this effete building blocks in and cramps the great National Gallery, surely it ought to be removed; and if an extension of the Gallery be carried out on the site, the integrity and perfect isolation of the structure should be secured by a wide street or piazza on the north side. The south-east wing is backed by the Guards' barrack-yard, which has an entrance, opening to Trafalgar-square; this yard might not be objectionable if bounded by appropriate fence-walls.

When Charing-cross is opened to the Embankment, this site will truly be the noblest in Europe; and now that Mr. Albert Grant's princely gift of Leicester-square (gorgeously embellished) to the public, opens the way from Piccadilly, the occasion ought not to be lost for so great an advance of much-improved thoroughfare in the heart of the metropolis.

QUONDAM.

MEMORIAL OF BALFE.

ENGLAND owes gratitude to Balfe for many sweet melodies, and some of his best works will live to challenge the judgment of future generations. In recognition of this his friends subscribed, and commissioned Mr. L. A. Malempré to execute a statue of the composer, which now forms part of the Royal Academy exhibition, and deserves, as it seems to us, more attention and praise than it has received. By the introduction of a cloak, thrown round the figure and over one shoulder, and those who have attended rehearsals of an opera know that this is a common enough condition, some good drapery is obtained, and the stiffness of modern costume is obviated. The likeness, moreover, is excellent. The statue is to be placed in the vestibule of Drury Lane Theatre. It deserves a site less subject to personal influences.

CARLISLE AND CUMBERLAND NEW BANK.

THE plans of Mr. Crosby Hetherington, of Carlisle, architect, for the new buildings of the Carlisle and Cumberland Banking Company, at Carlisle, have been passed by the local Health Committee.

The site will be that occupied by the present bank buildings, half the White Hart Hotel, and a considerable space behind. The frontages will be into English-street and Bank-street, the former being about 70 ft., and the latter about 45 ft., the angle of the frontages being rounded off.

The ground-floor will contain a public telling-room of 40 ft. by 20 ft. and 16 ft. in height, which will be lighted from English-street, Bank-street, and from behind, and which will accommodate seventeen or eighteen clerks; the manager's room, overlooking English-street, 24 ft. by 16 ft.; and a safe, 13 ft. by 11 ft.; a large storage-safe, cellars, and a back-room, 20 ft. by 17 ft. Above is the manager's house, the entrance to which will be from English-street. The first-floor will contain entertaining-rooms, kitchens, and other offices; above which will be bedrooms.

In addition to the bank buildings, there will be erected in Bank-street a shop and some offices, over 45 ft. in width, and three stories high. The shop will be 32 ft. by 24 ft., and will be double-lighted, and have a show-room above. The offices are to be on the first floor, and will consist of two suites of three rooms each; while on the third floor will be the living-rooms for the keeper of the bank. The cellars will contain a large storage-safe and the heating-apparatus for the bank.

With respect to the elevation, it will be built of wrought white stone throughout, and the shop and offices of white brick, with white stone facings, the levels being lower than those of the bank. The general style of the architecture is Italian Gothic. The chief entrance will be triple arched, each arch being supported by a column, capped and based; and the windows will have semicircular headings, surmounted with moulded hoods, and with a column in each side. The second and third stories will be plain, and in the attic roof will be placed dormer windows.

THE PROPOSED METROPOLITAN BUILDINGS AND MANAGEMENT BILL.

THE following is part of a communication from a "Builder and Landowner":—

The present Acts of Parliament give the public a statutory right to lay out their estates to suit their own views, so long as they comply with the law as to the width, &c., of streets; and the Board have power to relax these rules if they think fit.

The new Bill makes the landowner's right to lay out his ground for building purposes entirely a matter optional to the Board, who propose to take powers to themselves to reject any plan or scheme however reasonable, and to couple consent with any condition, however absurd or unreasonable, even to a surrender possibly of a portion of the fee-simple for the use of the public, or to limiting the amount of rents to be taken by the freeholder. It is impossible to tell who may be sent to the Board by the Vestries of the Metropolis in the future; and it is quite possible that a landowner proposing to erect on his estate houses of the value, say of 100*l.* per annum, may be told by the Board that they shall require a small class of property for the use of the working man to be erected in that locality, and that they will refuse permission to build anything else, and also make a condition that the ground-rents shall not exceed what *they* may please to consider reasonable, which the owner may consider very unreasonable.

The regulations affecting the question of projections beyond the line of front, which are often vexatious and injurious to private rights, will be doubly so if this Bill become law.

In giving a building notice, if the builder does not keep himself well acquainted with the very voluminous and fluctuating code of bye-laws projected by the Bill, he will be in a state of uncertainty; for he will find it enacted in the body of the Bill, clause 50, that he must serve a notice on the Board, whilst in the 1st schedule, part 11, he will find that he must give a notice to the District Surveyor, whilst a reference to schedule 14, rule 6, will still further puzzle him.

It would be a great hardship on persons building at Greenwich or Hampstead to require them to come to Spring-gardens to give notice; and should the Board at any future time, for the purpose of making a profit out of the fees, considerably reduce the number of district surveyors, and pay them by salary, taking the fees for the purposes of the Board, it must be obvious that they would not incur the expense of providing offices in all parts of this great metropolitan area, a provision which is now made by the district surveyor under the Statute.

It must be considered as an injustice on the building public that they are to be dealt with as a source of revenue to the Board, and their personal convenience made to suffer by the substitution of "the Board" for a responsible officer in the person of the district surveyor, against whom redress may be obtained, if necessary, in a court of law, subject to the provisions of Section 108 of the present Act. The fact that this section is not re-enacted in the Bill, would lead one to suppose that the future district surveyors, being absolute servants of the Board, will be irresponsible, and any grievance must be redressed by an action against the Board, a matter which would be most formidable, and far from pleasant or beneficial to the public.

Should the builder find it necessary to form a non-combustible floor over a passage leading through his building to premises in the rear, he will not find his convenience consulted by having to prepare drawings and attend the Board for approval, instead of, as at present, calling on the district surveyor, and having the thing settled at once on a rough-and-ready principle by a practical man.

On the other hand, if the builder, or some person who is not a builder, wishes to erect a tall chimney-shaft, he will be gratified to find that he is spared the present troublesome process of sending a proper drawing for the approval of the Board, a copy of which has hitherto been forwarded to the district surveyor for his guidance; and that he may commence his work leaving the district surveyor quite in the dark as to whether the shaft is to be 50 ft. in height or 500 ft., quite unable to decide, or advise the Board (if his advice is asked) what spread or depth of concrete is requisite, or what should be the thickness of the brickwork.

When the builder looks at Schedule 7, he will be at once struck with the injustice of Part 1, Rules as to Expenses, for he will find that the building owner and adjoining owner must pay the expenses in proportion to the superficial extent of the party structure of which they respectively avail themselves. The building owner may erect a building which demands a wall 2 ft. 2 in. thick. The adjoining owner's building may require a wall 9 in. thick only, but by this rule he would have to pay for the thick wall.

He would also find by 7th Schedule, Part 4, Rules 6, 7, that his neighbour might pull down, for his own convenience, a perfectly sound and sufficient party-wall, and would not be bound to compensate him for loss of business or compulsory removal to a furnished house elsewhere, nor for damage to furniture or stock in trade.

It would appear that should this Bill become law, application may or must be made to the Board for approval or permission, or variations of rule in no less than fifty-nine matters relating to buildings, viz., Clauses 13, 16, 17, 18, 21, 41, 49, 42a, 44, 45, 46, 48, 52, 61, 64, 65, 67, 70, 73, 76, 77, 97; 2nd Schedule, Parts 1, 2, 3, 4; 4th Schedule, Part 1, Rule 11; Part 2, Rule 24; Part 4, Rules 30, 32; 5th Schedule, Rules 1, 5, 10, 15, 20, 31, 34, 35, 36, 40, 42, 73, 76, 82, 84, 85, 87, 92, 93; 6th Schedule, Rule 1; 8th Schedule, Rules 1, 2, 3, 4, 5, 6, 7, 8, 9.

It is impossible to suppose that the framer of this Bill could have calculated the result, for if he had he must have seen how impracticable it is.

It is fair to assume that out of so many subjects requiring the consideration of the Board, there would be at least an average of two to each building or work executed, and it will be found by an examination of the report published by the Board, that 19,000 per annum is a very moderate estimate of the number of works in the year. This would necessitate 38,000 applications, and as the Board only sit 44 weeks in the year, it will be seen that the average number of applications would be 863 per week. Very little reflection is required to observe that it would be simply impossible for *the Board* to fairly consider one quarter of these, and the natural result would be, that they would delegate the duty to some of the "officers, clerks, and servants" referred to in Clause 81.

But as it is well known that members of the Board have openly said they intend to have a very different class of men from the District Surveyors, the corruption and confusion can be imagined.

The 863 applications per week must be made to the Board, accompanied, as at present, by a fee; 863 communications must be made to the officers as suggested above; 863 reports must be received from them, and 863 replies given to the applicants. But the annoyance to the public would be so great as to be unbearable; for instance, in upwards of 20 out of the 59 subjects on which application must be made, a drawing would be necessary, and it is not unreasonable to assume that one-third of the 863 would come within this category, and as the Board by their present bye-laws require three copies of every drawing, it follows that the public would have to make on the average 863 drawings per week, at a cost which will not bear consideration.

The net result of this examination of the Bill is, that it is a piece of "grandmotherly" legislation only calculated to enhance the importance of the Metropolitan Board; and as the writer of this, although "only a builder," has no desire to have his business interfered with more than is absolutely necessary for the public benefit, he protests against his trade interests being so entirely committed to the absolute control of a body of gentlemen who are either quite devoid of any knowledge of the subject; or, if possessing any professional knowledge, should not be placed in the invidious position of being said to direct and influence their colleagues in matters of such great importance to the general body of the inhabitants of the metropolis, of whom, it must not be forgotten, they are by no means the representatives, being in fact the representatives only of the Vestrymen.

Congress of French Architects.—The congress under the presidency of M. Henri Labrouste, will be opened on the 15th inst., and will run on during the 16th, 17th, 18th, 19th, 20th, and 22nd. The responsibilities of architects will be discussed on the opening day.

OPENING OF THE FAVERSHAM BREWERY NEW BUILDINGS.

AT Faversham some extensive additions by Messrs. Shepherd, Neame, & Co. to their already large brewery premises have been opened. Their *employés*, amounting in number to about eighty, dined on the occasion at the head-quarters of the 2nd Kent Artillery Volunteers in Preston-street. The new buildings, although an important addition to the brewery, yet form but a small portion of the premises. The lower part, used entirely for the storage of ale, is capable of receiving 1,000 barrels, and is connected with the existing ale stores of the brewery by means of a system of inclined tramways, thus enabling the contents of one store to be rapidly removed into another. On the upper floor spacious malt and hop stores have been formed, and in their storing-bins 5,000 quarters of grain may find dry housing, whilst something like 3,000 pockets of hops there await the brewer's wants. The exterior of these new buildings is plain. The foundations are carried down through the soft blue clay to a depth of 15 ft., and care was required in the execution of this work in consequence of the water and nature of the soil. The floors of the malt and hop stores already referred to, are formed of rolled wrought-iron girders and joists calculated to bear a weight of nearly half a ton upon each superficial foot of floor-space. The works have been carried out by Mr. L. Shrubsole, of Faversham, under the immediate direction of Mr. B. Atkins, the architect.

DOUGLAS TOWN IMPROVEMENTS.

A SPECIAL meeting of the Douglas New Street Board has been held at Douglas, when the estimates and valuations of the Douglas town valuers of the property required to be taken by the new street (to be called Victoria-street), and of Mr. Ellison, for the cost of the construction of the street; and of Mr. Powell, C.E., for the cost of the construction of the Loch Promenade, were laid before the Board. The estimates of the town valuers showed that, after allowing for the resale of the land on the street, and allowing the shore, the net cost of the work would only be 5,897*l.* They estimated that the sale of the land proposed to be reclaimed in connexion with the marine work would produce 19,578*l.*, and that the entire cost of the work would be about 32,000*l.*, exclusive of the resale of the land so reclaimed. A long discussion took place, and it was generally conceded that the Board had ample means at its disposal to carry out the proposed improvements. It was unanimously resolved to wait upon the Lieutenant-Governor, and apprise him of the determination of the Board, which was to at once proceed with the construction of the sea-wall; and after constructing about 200 ft., then to invite tenders for the construction of the remainder of the sea-wall, as they would thus be enabled to decide whether it would be cheaper to carry out the work by contract or day-work. The Board, therefore, waited upon his Excellency with a verbal report of its proceedings. The Board consists of the Douglas Town Commissioners and the Government Commissioner, Mr. Dalrymple, H.K.

SCHOOL BOARD SCHOOLS.

London.—A new school has been opened at Hatcham by Sir Charles Reed, President of the Board. Mr. Gale was the architect. In opening the proceedings, Sir Charles congratulated those present on the numerous attendance, and said that in the district they were dealing with school accommodation had to be provided for to the extent of 5,000. No less than 3,000 children had already been provided for, and they now only had to obtain school premises for 2,000 more. This was one of the eighty schools, fifty of which were building or built, leaving thirty more yet to be erected. He trusted before that time next year there would be seventy out of the eighty schools provided. The school would be opened upon the broadest basis, and a pleasant feature in connexion with it was that it possessed a large playground. Mr. Currie said that the school, which is situated in Kender-street, Hatcham, was capable of accommodating 279 boys, 279 girls, and 271 infants; making a total of 829. The site of the school covered over half an acre of ground, the cost of the building being about eight guineas per head, or, including the value of the site, about ten guineas

per head.——The London-fields School, West-street, Hackney, will shortly be completed, and arrangements are being made for the opening. ——For the erection of the projected school in Barnet-street, Hackney, the committee recommended that the lowest tender, that of Messrs. Parsons Brothers, of Prospect House, Charles-street, Liverpool-road, amounting to 5,610*l.*, be accepted; and their report was adopted.

North Shields.—The new Board Schools, situated near Milburn-place, North Shields, one of the first erected by the Tynemouth School Board, have been publicly opened in the presence of a numerous company. Mr. Alderman Green, the Chairman of the School Board, presided. The site of the Western Schools is a little to the south of the new main road leading to Howdon Dock, abutting on the High Pit Row on the west, and is very conveniently situated as regards the population at the west end of North Shields. The arrangement of the schools, which are all on one ground-floor level, places the boys' at the west end, with the main entrance from a new street on the north side, the girls' at the east end, and the infants' in the centre, with another entrance from the same street. The boys' and girls' schools are each 60 ft. long by 32 ft. wide, 14 ft. 3 in. high at the side walls, and 21 ft. 6 in. in the centre. The desks are arranged in the "double Battersea system," three-deep on each side of the rooms, with the master's and mistress's desk in the centre at one end; to these are attached class-rooms 18 ft. by 15 ft., giving accommodation to 582 boys and girls. A corridor in the rear of the class-room, 8 ft. 6 in. wide, communicates with the entrances. The walls of the corridors are lined with white glazed bricks. The eastern corridor also leads to the infant school in the centre, which is 56 ft. long by 33 ft. wide, out of which open two class-rooms, each 18 ft. by 14 ft. 6 in. The infants' school and class-rooms are each fitted with galleries for the children; these will accommodate 284 infants. The total accommodation is, therefore, for 866 children. Access to the play-grounds, which are situated on the south side of the schools, is obtained from the corridors, and adjoining this entrance is a lavatory for the use of the children, and retiring-rooms for the master and mistress. Immediately in rear of the infant school are covered sheds opening into both play-grounds. These, together with a portion of the play-grounds, are laid with Wilkinson's cement flooring. The walls of the school are of blocking coarse stone, with ashlar dressings. The woodwork is all dressed and varnished throughout. In addition to the pivot sashes in each window there is a continuous length of perforated zinc in the ceiling of the various rooms, and two of Hill & Hay's ventilators are placed on the ridges of the three schools. The front elevation extending 215 ft., shows three gables, the centre one coming out to the street line, the intervening buildings being roofed transversely to the gables, and connecting the whole together. The contractors for the whole of the works are Messrs. J. & T. Robson; sub-contractors,—Mr. Place, for the slaters' work; Mr. T. Grieves, for the plumbers' work; and Mr. Frazier for the painting. The architect was Mr. F. R. N. Haswell, of North Shields; and the clerk of the works Mr. Hartmann. The schools cost on the whole 7,800*l.* The ground cost 3s. 1½d. per square yard, and there being 4,048 square yards, the amount was 633*l.* Exclusive, the contract for the building was for 5,734*l.*; for heating apparatus, school fittings, and extras of a variety of kinds, 833*l.*; professional charges of every kind, including clerk of the works, nearly 600*l.*; thus making a total of 7,800*l.* The schools cost about 9*l.* per head per child. The Government advanced money towards the building of the schools to the amount of 7,500*l.*, at 3½ per cent., and this money having to be paid in fifty years, it will saddle the borough with an annual payment of 319*l.* 13s. 9d. for fifty years, which will be about three-fifths of a penny in the pound upon the present rateable value of the borough.

Chirton.—The new schools erected in connexion with the Borough of Tynemouth School Board at Chirton have been formally opened. The Chirton Board schools are situated on the east side of Billy Mill Lane. These consist of a mixed school, 67 ft. 6 in. long by 21 ft. wide, 15 ft. high at side walls and 19 ft. in centre, having an entrance for boys on the south side, and for girls and infants on the north. An infant school, 36 ft. long and 19 ft. wide, is built at right angles to the main building adjoining the north entrance, and class-room, 16 ft. square, adjoining the south entrance. Lavatories are placed in each lobby. The desks are arranged at present three deep along one side of the mixed school, and will accommodate 120 children, the class-room 40 children. The Infants' School has a large gallery, and will accommodate 85; in all 245 children. The outbuildings are placed behind the school, the playground being in front. The premises are enclosed by a stone boundary wall with wrought-iron gates in the centre. The walls are built of snicked rubble stonework—similar arrangements as in the Western Schools are made for ventilation and lighting. The whole of the works were let to Messrs. Shotton Brothers—the sub-contractors being Mr. Grieve for plumbers' and ironfounders' work; Mr. Park for painters; and Mr. Dale for slaters' work. The schools have been erected from the designs of Mr. F. R. N. Haswell, of North Shields, architect to the board, Mr. Hartmann being clerk of the works.

Edinburgh.—The Edinburgh School Board have had a meeting, at which it transpired that the probable cost of the new schools would be at a rate of about 9*l.* per child. From a statement submitted by the Financial Committee, it appeared that the income for the past year had been 8,869*l.* 1s. 4½d., and the expenditure 3,671*l.* 5s. 6d.

RESTORATION OF TEWKESBURY ABBEY.

A meeting, convened by the vicar and churchwardens, has been held in the vestry of the Abbey Church to receive the plans of Sir Gilbert Scott, and the estimate of the cost of the proposed restoration of the church. Sir E. Lechmere took the chair. Lord Sudeley wrote expressing approval of the scheme, and Mr. Gambier Parry wrote from Ely that he was so deeply engaged in costly work in the interest of the church near home that he was obliged to say "No" to all applications, but that the grand object of restoring Tewkesbury Abbey must be an exception, and he would subscribe 20*l.* Mr. Joseph Walker in a letter proposed annual subscriptions to the restoration fund, and said,—"I will give a guinea per annum for ten years if this is carried out." Large lithographic plans of the interior of the Abbey, with reference to the several chapels, monuments, cenotaphs, &c., the more ancient and the more modern parts of the building, also the arrangement of the Abbey when restored according to the plan of Sir Gilbert Scott, were distributed amongst those present. Mr. Fredk. Moore, the honorary secretary to the restoration fund, produced and read the specifications of Sir Gilbert Scott, and these were explained by Mr. Thomas Collins, who had also prepared an estimate of the cost. According to this estimate, arranged in four sections, which included the restoration of the whole of the choir, with the four arches of the tower, the four bays of the nave, and the stalls and fittings of the choir, and the cleansing of the walls and vaulting, the expense was about 3,000*l.*

A long discussion ensued, and a unanimous feeling was expressed in favour of at once making a determined appeal to the public, with a view to the immediate commencement of the work; and it was resolved that a committee be appointed with a view to raise the necessary funds in accordance with the design of Sir Gilbert Scott and the estimate of Messrs. Collins and Cullis, and to take such steps as they may think desirable for that purpose.

It was determined to open subscription lists forthwith, contributions to be received, amongst others, at the several branches of the Gloucestershire Banking Company.

CRANE ACCIDENT IN MANCHESTER.

AN inquest on the body of Edward Matthews, aged 19, who was killed at the works of Messrs. Wren & Hopkinson, Temple-street, Manchester, by the fall of a crane, has been held at the Coroner's Court, Manchester.

T. Wilson, foreman at Messrs. Wren & Hopkinson's, said that they were raising a cylinder weighing between seven and eight tons by the travelling-crane. The crane had regularly raised a much heavier weight. When they had hoisted two or three inches off the "bogey" witness shouted "Hold on." It all then came down with a crash. Found the running beam had broken close to one of the uprights. Deceased fell between the cylinder and the crab. There were six men engaged, and all got more or less injured.

George Hartley Goldsmith, architect and civil engineer, stated that at the request of the coroner he had examined the remains of the crane and stage. The crane stood in a number of uprights, and the beams were joined. At one of the joints the wood had decayed. The weather had got in at the joint and had caused the wood to rot. This could not be ascertained without trying the timber with a "gimlet," or a similar instrument. All travelling cranes were liable to rot. Witness should certainly recommend that after "a certain lapse of time" steps should be taken to ascertain whether the timber was strong or not. The upper part of the beam seemed perfectly sound.

Mr. John Hopkinson (Messrs. Wren & Hopkinson) said the travelling-crane was erected ten or twelve years ago under the direction of the foreman carpenter. It never occurred to witness that the portion of the beam referred to by the last witness had decayed.

The jury unanimously returned a verdict of "Accidental death."

PROHIBITION OF WORKING OVERTIME IN SCOTLAND.

A LARGE building in the centre of Glasgow, and the completion of which is urgently required for the business of a public company, is being suddenly stopped under the following circumstances:—

The work is already much behind the contract time, owing chiefly to the long strike of the masons in the summer of 1872, but is now near its completion. In order, however, to expedite the job, and take advantage of the long days and fine weather, the owners of the building proposed to the contractor for his men to work overtime, the company agreeing to pay the usual allowance to men,—namely, time and a half.

This the builder was ready to carry out, as well as the foreman and men, but the last required to obtain the consent of the executive of their trade-union before beginning to work overtime. This the union refused to give, and ordered the men to work only the union hours.

The Stonemasons' Society that is to the fore in Glasgow, by their rules prohibit masons working overtime on *new* buildings, although on *old* ones the rule may be suspended.

EARLY VENTILATION.

SIR,—In turning over the leaves of an old cyclopædia, by E. Chambers, F.R.S., being the seventh edition, 1751, where in an article on air it mentions "that Dr. Desaguliers has lately contrived a machine by either drawing out the foul, or forcing in the fresh air,—something of it is said to have been actually put in practice over the House of Commons to draw away the hot steam from the candles, breath, &c., of so many persons in hot weather. Vide Phil. Trans., No. 437, p. 41. Having given ventilation much study, I thought whether any of your many antiquarian readers could inform me where to see a fuller description or an illustration of the same. M. T.

NORTH NIBLEY CHURCH.

THE choir and chancel of this parish church are new portions of the edifice built about ten or twelve years ago, and on the north side were added an organ-chamber and vestry. At the close of last year, the east window was filled with stained glass containing three divisions, and each division three subjects, the whole forming nine subjects of our Saviour's history on earth prior to His ascension. Works of art have lately been added to the east wall, which have been carried out by Powell & Son, of London, in compliance with the directions of Messrs. Clayton & Bell, the makers of the windows, completing their design and contract. At the foot of the windows, above the communion-table, is placed a reredos of mosaic, with centre and right and left subjects, the first figure being the Angel appearing to Mary, and holding a scroll bearing the inscription, "Ave Maria Gratia Plena." The centre subject is our Saviour on the cross, with Mary His Mother, and the beloved disciple, St. John, standing by, the inscription being "Behold the Lamb of God." In the south side is the risen Lord appearing to Mary Magdalene on the morning of the resurrection, the words of the subject being "I am not yet ascended unto my Father." Illustrations of the remaining portion of the verse from which this is taken are contained in the windows above, and are in three portions,—"I ascend unto my Father and to your Father," "And to my God," "And to your God." The mullions and frame of the window have been painted in colours, and the

capitals and other portions gilded. The whole of the east wall has been painted in various designs. At the north side of the reredos are the figures in the Jewish Church of the offices of Prophet, Priest, and King; and on the south side, of those of the Christian Church of Bishop, Priest, and Deacon. A rich altar-cloth was first used on Easter-day of this year, and is of deep marone velvet. The choir is surpliced. Some high brass candle-standards have been lately added for the chancel.

FEVER EPIDEMIC IN CARLISLE.

FEVER has of late been prevailing in Carlisle. The disease is spreading most in Annet-square and Annetwell-street. Though originally confined to the Square the fever has now reached to both sides of Annetwell-street. The inhabitants of the street, according to the local journal, complain that the authorities do little or nothing towards preventing the spread of the disease. In all, there have been about 30 cases in the square and street. There are 28 fever cases in the Fusehill Workhouse Hospital. There is accommodation in the Workhouse hospital for 41 more patients should the emergency arise. As a precautionary measure, the sewers in the city have been flushed and disinfected with carbolic acid. In Stanwix two fresh cases of typhoid fever have occurred. Both typhoid and typhus fever are prevalent. The persons suffering from fever are mostly young people from 10 to 19 years of age and persons in the prime of life. The medical men find the want of cleanliness the greatest obstacle in coping with the spread of the disease; while overcrowding is another source of evil. Houses for working people are, however, very scarce, and, to make things worse, we understand that no less than 119 notices were served in one week to quit houses required by the railway companies in carrying out their extensions.

THE NEW STYLE.

SIR,—The answer to those who deny the possibility of a new style of architecture before it is invented is (beyond what I before explained) that the thing has already been repeatedly done; and while the human mind continues constituted in the future as in the past, nature presents its boundless variety, change induces change, and new styles are to be again expected.

It is gravely asserted, without even attempt at proof, that this "is not a feasible speculation." But Sir William Hamilton observes that "There is no ground for inferring a fact to be impossible, merely from our inability to conceive its possibility." As to novelty, Harvey's great doctrine was not received by any physician who was more than forty years old; and, furthermore, "as for the possibility," Lord Bacon wisely and wittily says, "They are ill discoverers that think there is no land because they can discern nothing but sea." E. L. T.

CHURCH-BUILDING NEWS.

Kirklington (near Southwell).—The church here has been re-opened. About a year ago plans having been prepared by Mr. Christian, of London, the pulling down and rebuilding was commenced, Mr. Clipstone, of Norwell, being the builder. The tower has undergone little or no change, but the north and south walls and the chancel have been re-erected and a new roof put up. The interior fittings are all new, as are also the pulpit, reading-desk, &c. Free seats of oak, of modern style, have been made, and suitable accommodation provided in the chancel for the choir. The pulpit is of stone, and there is a lectern made of oak, the gift of the vicar. The pavement leading to the altar is of encaustic glazed tiles. The cost of restoring the chancel is defrayed by the Ecclesiastical Commissioners, but the restoration of the body of the church is due to the liberality of Mrs. Boddam Whetham, of Kirklington Hall, the vicar, and the parishioners. Earl Manvers added to the subscription list the sum of 100*l.*, and all in the village gave according to their means.

Drayton.—The parish church of St. Paul, West Drayton, has been reopened for divine service. No church in the county more needed repair. The movement towards that object was at once liberally responded to by the representatives of property in the parish,—the right hon. W. E. Gladstone and Lord de Tabley, trustees under the will of the late Duke of Newcastle, Mr. Hope, the Duke of Portland, and by others less immediately connected with the place. The parishioners gladly gave their time and labour in carting materials, and in other ways. Although occupying no more ground than before, yet by decreasing the depth of the walls, and by a new arrangement of the internal fittings, much additional room has been secured, and accommodation will be found. The old whitewashed ceiling has been supplanted by a high roof, the pews by open benches, the floor has been laid afresh, and, except that the west gable turret, the ancient doorway, and east window have been preserved, the building may be said to be new. The work has been executed by Mr. Sweeting, clerk of the works at Clumber, under the direction of Mr. A. G. Williams. Mr. Brown, painter, of Markham Moor, is said to have done the painting and staining at half the usual price.

Quarndon.—The new church at Quarndon, near Derby, the foundation-stone of which was laid by Lady Scarsdale, November 5th, 1872, has now been consecrated by the Bishop of Lichfield. The necessity for a new church for this increasing suburb of Derby has for some time been manifest. The site was given by Lord Scarsdale, who has been a liberal contributor. The new church is situated near the schools, and from its elevated position will be a prominent object from a wide range of view. It consists of a nave, with north and south side-aisles; a chancel, with organ-chamber, in which the organ has been placed; and a vestry, and a tower and spire at the south-west angle, near the road. The building is 82 ft. long and 50 ft. wide, and the top of the vane on the spire is 80 ft. high. The style is Early Decorated. The roofs of the nave, aisles, and chancel are boarded under the slates, and exposed to view, and the seats are open benches, which provide for 360 persons. The pulpit and reading-desk, of oak, carved by Mr. Edwin Thompson, of Derby, are the result of a subscription. A font placed in the nave is the gift of Messrs. Giles & Brookhouse, the architects, and supplied by Mr. Tinkler, Derby. There is also a carved oak lectern. The work has been done by Mr. Edwin Thompson, contractor, of Derby. The whole cost will be about four thousand pounds, and of this 3,500*l.* had been contributed or promised before the consecration service.

Bishop's Caundle.—There has been erected in the picturesque churchyard of Bishop's Caundle—which from its elevated position overlooks the country for miles around—a tomb of Portland stone, 11 ft. by 9 ft., weighing nearly three tons, and enclosed with ornamental iron work. On the top of the tomb is a full-length Latin cross, having in its intersecting head a lamb carved in white marble. The inscription is to the memory of Charles Robert Dampier, some time rector of the parish. The tomb, and the ornamental railing which surrounds it, together with the carved work, were designed and executed by Mr. W. Dalwood, of Sherborne.

Books Received.

The House-Owner's Estimate; or, What will it Cost to Build, Alter, or Repair? By JAS. D. SIMON, Architect. Edited and revised by FRAS. T. W. MILLER. Lockwood & Co., London. 1874.

THE ordinary householder who, desiring to add a bay window or to put in a new shop-front, should study an ordinary price-book would not find it easy to arrive at any notion, however general, of the probable cost of it. The main object of the little book before us is to supply such information, in a broad way, to the uninitiated, and it will be found useful by many. The projector and author of the book, Mr. Jas. D. Simon, unfortunately met with an accident, just as the last sheet had been completed, from which he never recovered. Some notes on dilapidations; and those portions of the Metropolitan Buildings Act, and of the regulations of the Board of Works, which more immediately affect the public are added.

Land in Gloucestershire.—The Cowley manor estate was knocked down to Colonel Richardson-Gardner, M.P., for 80,000*l.*, including the timber, valued at 4,000*l.* The estate comprises a freehold mansion and 1,870 acres.

Miscellanea.

New Hospital for Stroud.—The memorial stone of a new hospital has been laid at Stroud, by Lord Sherborne, as Grand Master of the Freemasons' Provincial Grand Lodge of Gloucestershire. Recently, Mr. Cowle, the proprietor of the Field Estate, offered an acre of land as a site, and Mrs. Franklin offered 1,000*l.* towards a new building. With this incentive, the committee made an appeal to the public for funds, and the appeal has been very fairly responded to. The cost of the new building is estimated at about 6,000*l.*, and of this about 4,000*l.* have been subscribed. The building, now in course of erection on the south side of Trinity Church, is already carried up above the line of the upper floor. It is arranged to accommodate 28 beds. The hospital will consist of three blocks of buildings, connected by wide fireproof corridors. The principal entrance to the hospital will be at the south-west corner of the site. The external face of the walls is of ranged rock-faced Rodborough Common stone, the quoins and window-dressings being in dressed Painswick stone. The shafts, arches, &c., to the front entrance-door are in Coombe-down Bath stone. The roof will be covered with Broseley tiles. The windows of the wards will be filled in with combined sliding and hinged sashes. The proper ventilation and warming of the wards and waiting-room have been provided by means of Galton's ventilating fire-grates. The corridors on the upper floor will be ventilated and warmed by two of Boyd's hygiastic grates, and will be used as convalescent day rooms. The work is being carried out from the designs, and under the superintendence, of Messrs. Medland & Son, architects, Gloucester, by Mr. A. Estcourt, builder, Gloucester. Mr. James Smith is the clerk of the works, and Mr. R. Wiggall the contractor's foreman.

Religion and Architecture.—The outside form of every Gothic cathedral must be considered imperfect if it does not culminate in something pyramidal. The especial want of all Greek and Roman buildings with which we are acquainted, is the absence—save in a few and unimportant cases—of the pyramidal form. The Egyptians knew at least the worth of the obelisk; but the Greeks and Romans hardly knew even that—their buildings are flat-topped. Their builders were contented with the earth as it was. There was a great truth involved in that, which I am the last to deny. But religions which, like the Buddhist or the Christian, nurse a noble self-discontent, are sure to adopt sooner or later an upward and aspiring form of building. It is not merely that, fancying heaven to be above earth, they point towards heaven. There is a deeper natural language in the pyramidal form of a growing tree. It symbolises growth, or the desire of growth. The Norman tower does nothing of the kind. It does not aspire to grow. Look—I mention an instance with which I am most familiar—at the Norman tower of Bury St. Edmund's. It is graceful—awful, if you will—but there is no aspiration in it. It is stately, but self-content. Its horizontal courses, circular arches, above all, its flat sky-line, seem to have risen enough, and wish to rise no higher. For it has no touch of that unrest of soul which is expressed by the spire, and still more by the compound spire, with its pinnacles, crockets, finials, which are finials only in name, for they do not finish, and are really terminal buds, as it were, longing to open and grow upward even as the crockets and leaves thrown off as the shoot has grown.—*C. Kingsley.*

The St. Helen's New Town-hall.—At the monthly meeting of the Council, held on Wednesday, Alderman Marsh presiding, a discussion arose regarding the manner in which the contractor for the new Town-hall is carrying out his contract. It was alleged that the bricks used are of a very inferior quality and unattractive appearance, and that the manner in which they are set is highly objectionable. The Chairman confirmed the complaints from his own observation, and asserted that it was a disgrace to the architect to allow the work to be carried on in such a manner. Mr. Beasley suggested that all the bricks in the front be removed, and "local shoddies" (stones) be substituted, even at an additional cost of 5,000*l.* or 6,000*l.* It was then decided to urge upon the committee the immediate consideration of the character of the material and the workmanship.

Society of Biblical Archæology.—At the last meeting, amongst other proceedings, a paper "On the Cylindrical Altar at Nectarhebos, Turin," by Joseph Bonomi, was read. This interesting monument, which, although noticed by Orcurti, is now published for the first time, is a large cylindrical altar of black granite, finely wrought, and covered with sixty-eight vertical lines of hieroglyphics, and four vignettes, representing the Pharaoh Nectarhebos of the XXXth Dynasty making offerings, and uttering adorations to the various deities of the four cardinal points. Also was read a note, by H. Fox Talbot, F.R.S., on "The Use of Papyrus among the Ancient Arcadians." In his recent investigations as to the original meanings of some of the Assyrian roots, Mr. Fox Talbot found that the terms Nazabu Shukani, "the stem of a reed," and Nigris, "a volume," and "writings upon vegetable skin," occur among the Assyrian inscriptions published by the British, thus attesting the accuracy of the statement of Pliny, that the papyrus was so used by the Babylonians,—a fact which, till Mr. Sayce first called attention to it, had been disputed. In a second note, "Assyrian Books," the following sentences were adduced to show that the Assyrian literature was not confined solely to inscriptions upon tablets of baked clay: "In the night time bind around the sick man's head a sentence taken from a good book" (for a charm); and "care not to save the newly written books."

Reconstruction of the Manchester Athenæum.—The work of restoring this Athenæum, which was seriously damaged by fire in October last, is rapidly progressing, and when completed the building will possess many advantages more than before the fire. The work of reconstruction has been carried on under the direction of a special committee. In response to their invitation several plans, in accordance with instructions, were sent in, and those of Messrs. Clegg & Knowles, subject to certain modifications, were recommended by the committee to the directors for acceptance. The lecture-hall will be 49 ft. 7 in. in width, and 29 ft. high. Since the original plans were drawn, the committee have decided to have the billiard-room placed on the George-street or south-east side of the building, and the library on the north-west side, and that the intermediate rooms between the billiard-room and the library shall be used as the board-room, and during the day as an additional smoke-room, communicating with the billiard-room. The old billiard-room on the basement, with the adjoining smoking-room, it was determined should be converted into the gymnasium, the floor being lowered 2 ft. or more. The contract for the building is being carried out by Messrs. Robert Neill & Sons, of Manchester, and in all probability will be completed about October next.

Woods.—The proposal contained in the Bill introduced by the President of the Local Government Board to remove the exemption from rates which woodlands now enjoy, makes it interesting to note the very varied proportions of the area of English counties devoted to the growth of timber. According to the official agricultural statistics, it would seem that of the whole surface of England and Wales less than 4 per cent., or only 1,453,000 acres out of a total of 37,319,000 acres, are occupied by woods, coppices, and plantations. Treating the three ridings of Yorkshire as separate counties, Sussex is the only county which returns more than 100,000 acres of wood, nearly 11 per cent. of its area being thus clothed. The woods of Hampshire are next in magnitude, embracing some 87,000 acres, but forming only about 8 per cent. of that county's area. Kent follows with 78,000 acres of woodland, while the adjoining county of Surrey, although returning only some 48,000 acres of wood, shows almost as high a percentage as its neighbour, Sussex, since very nearly one-tenth of its whole area is thus employed. The four counties we have named, taken collectively, appear to possess a much larger extent of woodland relatively to their size than any other area in England of similar dimensions.

Noxious Trades.—The President of the Local Government Board, a few days ago, received a deputation of gentlemen from parishes south of the Thames, who asked for Government interference with chemical works in order to prevent offensive emanations. In reply to the statements made to him, Mr. Sclater-Booth said he was not then in a position to say how far the Government were prepared to go, because, in the suggestions made, there were many trades and interests involved.

Public Hall at Aberavon.—A public hall has been opened at Aberavon. The building, which has been erected at the rear of the Commercial Hotel, is the property of a company of public men connected with the town, amongst the principal promoters of the scheme being Mr. Daniel, the mayor, and Mr. Tennant. The building has a frontage of brick and Bath stone. At the height of the first floor the front recedes 8 ft. or 9 ft., and thus affords a platform of nearly the entire length of the building. From this platform access is gained to the galleries of the principal hall. Of the interior, the basement is occupied with a Masonic lodge-room, intended for the Afan Lodge. The other portion of the ground floor is divided into the entrance corridor, and numerous offices, comprising a cloak-room, lavatory, &c. The principal hall is a commodious room, with platform and galleries. The ceiling is ornamented with stained wood, and moulding, while the front of the galleries is set off with iron trellis-work, floridly coloured.

New Mechanics' Institution at Northowram, Bradford.—The chief stone of the new Mechanics' Hall, which is in course of erection at the top of Lidget, in the centre of the village of Northowram, has been laid. The architect is Mr. T. W. Helliwell, of Brighouse. The building comprises a centre and two wings, and the total length will be near upon 100 ft. The large room will occupy the centre of the building, and will be 54 ft. long by 33 ft. wide. It will have an open timbered roof, and at one end will be a platform 15 ft. wide. The entrance-porch will be 9 ft. square, and the large room is lighted by five two-light windows on one side, and four on the other. There are class-rooms, 24 ft. by 18 ft., and a reading-room, 18 ft. by 13 ft. 6 in. The total cost will be about 2,000*l.* Mr. A. B. Foster, who laid the first stone, gave the site.

Langton Matravers Churchyard and Church, Isle of Purbeck.—New burial-ground has been consecrated at Langton, given by Mr. J. B. Garland, of Leason House, Langton. It is conveniently situated, and was much wanted. One-third of the ground has been devoted to the use of Nonconformists. The coping which surmounts the side walls was a gift of the quarrymen of the parish. The *Dorset Chronicle* remarks that the church, which cost 800*l.*, and is in the most debased style of forty-five years since, is simply a disgrace to the Isle of Purbeck. The wide spanning roof, unsupported by one single pillar, is pushing the walls out of the perpendicular, so that the yawning cracks in walls and ceiling warn the congregation of the weekly increasing danger of a seat within the one and beneath the other.

Improvements at the Brighton Public Baths.—The local Works Committee received tenders for the performance of builders' and engineers' work required in fitting up twenty new baths and making alterations and additions to the Public Baths, North-road, viz.:—

Marshall	£4,500	0	0
Lockyer	4,260	0	0
Cheesman & Co.	4,243	0	0
Newnham	3,895	0	0
Green & Son	3,885	0	0
Reed Bros.	3,880	0	0
Wagner	3,478	0	0

Mr. Wagner having made a mistake in his contract, the tenders of Messrs. C. & J. Reed were accepted.

Cæsar's Camp at Wimbledon.—It is feared that a renewed attempt is being made to convert the site of Cæsar's Camp into building ground. Some time ago the owners of the land erected a stout oak fence, dividing the enclosure into two portions. Nothing further was done for some time, but now the owners have gone a step further, and workmen have been busily engaged felling some of the trees which form the chief attraction of "the rounds." It is to be hoped measures will be taken to secure the *status quo* of Cæsar's Camp and so prevent perpetual uneasiness about the too great probability of its destruction.

The New Wool Exchange.—For many years past the wool business of London has had its chief quarters in and around Moorgate and Coleman streets. But it has become a necessity that better accommodation should be provided for the merchants. Accordingly a large Exchange has been erected in Coleman and Basinghall streets. The central hall is surmounted by a glass dome, and the seats are in semicircular tiers rising behind each other.

Value of Land, Charing Cross.—The Ship Hotel, Charing Cross, has been sold by auction, comprising a portion of the hotel with adjoining property in Spring-gardens, the whole occupying a site of 3,250 ft. The first bid was 15,000*l.*, and after a sharp competition it was knocked down to Messrs. Drummond at 30,000*l.*, being nearly 10*l.* per superficial foot, and more than 400,000*l.* per acre.

Medical Officer of Health for London. Dr. Sedgwick Saunders has been elected in the place of Dr. Letheby. Dr. Saunders was also elected public analyst. The salary for the joint offices is 600*l.* per annum.

TENDERS

For Chatham Garden Schools for the London School Board. Mr. E. R. Robson, architect:—

J. & S. Williams	£8,980	0	0
Patman & Co.	7,389	0	0
Waldram & Co.	7,025	0	0
Grover	6,985	0	0
Dove Bros.	6,955	0	0
Shurmur	6,800	0	0
High	6,789	0	0
Boyce	6,584	0	0
Sheffield	5,984	0	0

For two houses in Hornsey-lane, for Mr. G. C. Leighton. Messrs. Lander & Bedells, architects:—

Kelley, Bros.	£4,395	0	0
Dove, Bros.	4,325	0	0
Grover	4,274	0	0
Williams & Son	4,270	0	0
Ebbage	3,997	0	0

For pulling down and rebuilding St. James's Church, St. James's-street, Brighton. Messrs. Scott & Hyde, architects:—

Reynolds	£4,340	0	0
Cheesman & Co.	3,285	0	0
Eldridge	3,249	0	0
Stenning, Bros.	2,994	0	0
Patching & Webber (accepted)	2,890	0	0

For No. 71, Great Portland-street. Mr. A. E. Hughes, architect. Quantities supplied:—

Perkins	£1,675	0	0
Wagner	1,670	0	0
Grimwood & Sons	1,635	0	0
Hyde	1,396	0	0
May	1,283	0	0

For No. 73, Great Portland-street. Mr. A. E. Hughes, architect. Quantities supplied:—

Hyde	£1,560	0	0
Grimwood & Sons	1,298	0	0
Wagner	1,258	0	0
Perkins	1,175	0	0
May	1,163	0	0

For a house at Hampstead, for Mr. W. H. Stallard. Messrs. Spalding & Knight, architects. Quantities by Mr. G. Fleetwood:—

Stephenson	£2,414	0	0
Ranken	2,400	0	0
King & Son	2,325	0	0
Snowball	2,300	0	0
Hook & Oldley	2,297	0	0
Shepherd	2,295	0	0
Boyce	2,288	0	0
Sawyer	2,250	0	0
Gilmour	2,245	0	0
Grover	2,193	0	0
Crockett	2,184	0	0
Steed	2,179	0	0
Hunt	2,127	0	0
Johnson	2,113	0	0
Grimwood & Sons	2,098	0	0
Simpson & Baker	2,095	0	0
Aitcheson & Walker	2,075	0	0
Robins & Co. (accepted)	1,955	0	0

For two detached houses, Arkwright-road, Hampstead, for Mr. E. H. Mannering and Mr. Charles Price. Messrs. Spalding & Knight, architects. Quantities by Mr. G. Fleetwood:—

				Add for alternative List.		
Stephenson	£5,895	0	0	£28	0	0
King & Son	5,575	0	0	10	0	0
Shepherd	5,550	0	0	10	0	0
Boyce	5,495	0	0	18	0	0
Gilmour	5,350	0	0	35	0	0
Sawyer	5,333	0	0	25	0	0
Snowball	5,296	0	0			
Grover	5,184	0	0	7	0	0
Steed	5,142	0	0	30	0	0
Rankin	5,136	0	0	20	0	0
Hook & Oldley	4,998	0	0	20	0	0
Johnson	4,985	0	0	35	0	0
Crockett	4,975	0	0	8	15	10
Hunt	4,937	0	0	18	0	0
Grimwood & Sons	4,927	0	0	5	0	0
Simpson & Baker	4,898	0	0	32	15	0
Robins (accepted)	4,480	0	0	10	0	0

For warehouse at Fresh Wharf, Thames-street, for Messrs. Knill & Co. Messrs. Snooks & Stock, architects. Quantities by Messrs. Linsdell & Gifford and Mr. Jas. Moreland. To complete in four months:—

Brown	£8,975	0	0
Conder	8,892	0	0
Munday	8,779	0	0
Jackson & Shaw	8,672	0	0
Wood	8,523	0	0
Brown & Robinson	8,465	0	0
Adamson	8,460	0	0
Coleman	8,354	0	0
Rider	8,280	0	0
Brass	8,193	0	0
Bland (accepted)	7,994	0	0
Newman & Mann *	7,726	0	0

* To complete in six months.